## **RESPONSE TO EPA COST COMMENTS**

### **PURPOSE**

The purpose of this memorandum is to provide additional cost backup information as requested in the U.S. Environmental Protection Agency (EPA) September 10, 2013 email (EPA 2013). The cost backup information request pertains to Appendix K (Cost Estimates) of the Draft Lower Willamette Group Feasibility Study (draft FS) submitted to the EPA for review on March 30, 2013 (Anchor QEA 2013). EPA requested cost backup, including vendor quotes on material prices, assumptions used in determining unit costs for construction tasks, as well as more information on the present worth analysis for operations, maintenance, and monitoring tasks.

Other elements of EPA's backup requests include a request for additional data tables to summarize cost and quantity information on a more refined level than previously presented. EPA is requesting additional cost and quantity data tables on the sub-Sediment Management Areas (SMAs). In order to streamline efforts and provide useful data to EPA, this submittal includes a draft template of the EPA-requested data tables. These draft tables currently include "dummy" data that, after EPA approval of the table format, will be populated with actual cost data and submitted to the EPA within 45 days of EPA approval.

### **COST BACKUP**

# **Unit Costs Buildups**

To estimate construction costs, unit costs were calculated for a variety of construction elements. Table 1 presents the unit cost summary used in the draft FS. Section 2.3 of Appendix K of the draft FS describes how the unit costs were developed. These unit cost buildups are included with the tables attached to this memorandum and are listed in the table of contents of the attached tables. Tables 2 through 26 present the unit cost buildup for different construction elements. Unit costs were estimated from the sum total of equipment, materials, and labor costs and then normalized by the assumed production rate.

- Equipment
  - Equipment pricing was obtained from Rental Rate Blue Book for Construction
     Equipment (version 2008.1.1). Table 27 presents the used equipment rates.
- Labor
- Labor rates are Davis-Bacon wage determinations issued by the Department of Labor for Multnomah County, Oregon (updated August 20, 2010).
   Table 28 presents the used labor rates.
- Materials
  - Materials for construction equipment include miscellaneous expendable items specific to the construction task, including Personal Protection Equipment, Fuel-Oil-Grease, or equipment repairs (assumed to be a percent of the equipment costs).

- Production Rates
  - The rates are assumed based on site conditions and experience. Section 2.3 of Appendix K details the assumed production rates for each construction element.
- Overhead and Profit
  - A 25-percent markup is applied to labor, materials, and equipment to account for overhead and profit.

### **Materials Costs**

Quotes were received from a Portland-area vendor for the purchase and transport of engineered cap materials, residuals cover material, and organoclay mat material. Table 29A presents the cost buildup for the purchase and transport costs for cap materials. Table 29B presents the vendor quote.

### **Indirect Construction Costs**

Unit cost backup for the following indirect construction tasks are included in Table 30.

- Daily oversight and project management including environmental monitoring
- Engineering support during construction

These, and other indirect construction costs, including Daily Agency Oversight and Project Management are discussed in more detail in Section 2.1.1 of Appendix K of the draft FS.

# PRESENT VALUE ANALYSES

For clarity, EPA reviewers requested additional information in regards to the present value analysis and, specifically, additional information on present value analyses for Long Term Monitoring, Maintenance, and Operations and Institutional Controls, and the discount factors associated with these elements.

### **Direct Construction Costs**

Construction durations for the different alternatives vary significantly with the higher alternatives taking much longer. Within each alternative, assumptions were made concerning sequencing of the SMAs (see Section 7.5 of the draft FS). For direct construction elements like dredging and capping, discount factors for construction operations were applied on a SMA basis for each alternative, based on the year the SMA work was implemented. Discount factors for construction in the first SMA began at year 1. Discount factors for each subsequent SMA remediated under each alternative are summarized in Table 2 of Appendix K of the draft FS.

## Long Term Monitoring, Maintenance, and Operations and Institutional Controls

Assumptions for Long Term Monitoring, Maintenance, and Operations (LTMMO) costs are discussed in Appendix K (Section 2.1.1) and Appendix T (Section 3.4) of the draft FS. Assumptions for Institutional Controls (IC) costs are discussed in Appendix K (Section 2.4) of

the draft FS. Together, these elements sum to the LTMMO costs presented in Table 2 of Appendix K of the draft FS.

- For alternatives associated with remedial action levels B, C, D, and E, LTMMO and IC costs were assumed to occur following the completion of all construction activities.
- For alternatives associated with remedial action level F, construction durations were typically greater than 10 years, so it was assumed that monitoring events for the previously completed SMAs would occur prior to the completion of remedial activities for all SMAs. Discount factors for LTMMO and IC costs were calculated for each alternative, assuming that the first monitoring event would occur within a few years after the midpoint of the total duration of the alternative. Table 31 provides the assumptions necessary to calculate discount factors for LTMMO and IC costs.

In order to provide an estimate of LTMMO and IC costs on a SMA level, these costs were distributed among the SMAs based on the size of the remedial area for each SMA.

## SUPPLEMENTAL COST TABLES

EPA is requesting additional cost and quantity data tables to the detail of the sub-SMA to assist with their evaluation. A complete set of all cost and quantity data has already been provided to the EPA in the form of an Excel spreadsheet (Attachment 1 of Appendix K of the draft FS). However, the requested table will present the requested data in a more focused form.

There are over 3,200 sub-SMAs, each with its own cost estimate for each of the ten action alternatives. Due to the high level of detail associated with this request, this submittal includes a template table showing the proposed format of the sub-SMA data presentation (Table 32) for EPA review and approval to help avoid unnecessary iterations of these highly detailed tables. This draft table includes "dummy" values that, after EPA approval, will be populated with actual quantity and cost data, and submitted to the EPA within 45 days of EPA approval. LWG proposes that the draft template table have the following properties:

- One table will be provided for each action alternative (B, C, D, E, and F).
- To streamline review efforts, sub-SMAs will be organized from the highest cost to the lowest for each alternative.
- Separate columns will be provided for costs and quantities for the removal and in situ treatment-focused options under each alternative.

### LIST OF TABLES

## Table # Title

- 1. Unit Cost Summary
- 2. Debris Removal and Disposal (Item No. 3.1)
- 3. Pile Removal (Item No. 3.2)

- 4. Pile Replacement (Item No. 3.3)
- 5. Temporary Dock Relocation (Item No. 3.4)
- 6. Temporary Sheetpile Walls (Item No. 5.2)
- 7. Silt Curtain Installation (Item No. 5.1)
- 8. Open Water Dredging and Transport (Item No. 4.1)
- 9. Confined Dredging (Item No. 4.3)
- 10. Dredging from Shore and Transport (Item No. 4.2)
- 11. Residual Dredging (Item No. 4.4)
- 12. Stabilization (Item No. 6.3)
- 13. Scow Transportation (Item No. 6.1)
- 14. Hydraulic Offloading (Item No. 6.5)
- 15. Open Water Capping (Item No. 7.1)
- 16. EMNR Layer Placement (Item No. 7.1.1)
- 17. Residuals Cap Placement (Item No. 7.1.2)
- 18. Backfill Placement (Item No. 7.1.3)
- 19. Confined Underpier Capping (Item No. 7.2)
- 20. Confined EMNR Layer Placement (Item No. 7.2.1)
- 21. Confined Residuals Cap Placement (Item No. 7.2.2)
- 22. Confined Backfill Placement (Item No. 7.2.3)
- 23. Organoclay Mat (Item No. 7.3)
- 24. Upland Subtitle D Landfill Disposal Cost Buildup
- 25. Upland Subtitle C Landfill Disposal Cost Buildup
- 26. In Situ Treatment Cost Buildups
- 27. Equipment Rates
- 28. Labor Rates
- 29A Material Costs
- 29B Vendor Quote
- 30 Indirect Construction Cost Buildup
- Discount Factors for Long Term Monitoring, Maintenance and Operations Costs
- Draft Template Table for EPA Comment: Cost and Quantity Estimates by sub-SMA

# **REFERENCES**

Anchor QEA (Anchor QEA, LLC), 2012. Portland Harbor RI/FS—Draft Feasibility Study (draft FS). Prepared for Lower Willamette Group. March 2012

EPA, 2013. Regarding: Request for backup cost information. Email from: C. Humphrey, EPA Region 10. Email to: Bob Wyatt and James McKenna. September 10, 2013.

## Portland Harbor RI/FS



**Construction Task Cost Tables:** 

Cost Estimate Backup Draft Feasibility Study October 2013

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3	Pile Removal (Item No. 3.2)
4	Pile Replacement (Item No. 3.3)
5	Temporary Dock Relocation (Item No. 3.4)
6	Temporary Sheetpile Walls (Item No. 5.2)
7	Silt Curtain Installation (Item No. 5.1)
8	Open Water Dredging and Transport (Item No. 4.1)
9	Confined Dredging (Item No. 4.3)
10	Dredging from Shore and Transport (Item No. 4.2)
11	Residual Dredging (Item No. 4.4)
12	Stabilization (Item No. 6.3)
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14	Hydraulic Offloading (Item No. 6.5)
15	Open Water Capping (Item No. 7.1)
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	Supplemental Cost Tables
32	Draft Template Table for EPA Comment: Cost and Quantity Estimates by sub-SMA

# DO NOT QUOTE OR CITE



Table 1. Unit Cost Summary

Pechnology/Construction Task Element	Cost	Unit Type
Direct Construction Costs		
Mobilization and Demobilization (1)	15%	% + GDE
Debris Removal & Disposal	\$11,630 \$635	ACRE
Pile Removal & Disposal Pile Replacement	\$6,636	PILE PILE
Temporary Dock Relocation	\$89,173	DOCK
Dredging & Transport to Offloading Facility	φοσ,175	DOCK
Water Quality Control Structures		
Purchase, Install and Maintain Silt Curtains	\$86	LF
Purchase, Install and Remove Sheet Pile Walls	\$2,440	LF
Dredging	. ,	
Open water	\$33.80	CY
Confined or shallow water	\$47.70	CY
Dredging from shore	\$41.60	CY
Residual Dredging	\$79.60	CY
Miscellaneous		
Stabilization	\$31.30	CY
Barge Transportation	\$126.00	MILE
Hydraulically Offloading	\$5.60	CY
Capping		
Material Purchase and Deliver		
Base Cap - Sand	\$14.60	TON
Armor A material	\$18.00	TON
Armor B material	\$18.00	TON
Armor C material	\$18.00	TON
Armor D material	\$18.00	TON
Armor ODOT 100 material	\$31.50	TON
Armor ODOT 200 material	\$31.50	TON
Cap Material Placement		
Open Water Placement		
Base Cap - Open Water	\$17.60	TON
Armor - Open Water	\$15.50	TON
Organoclay Mat - Open Water (Purchase and Place)	\$6.30	SF
EMNR Layer - Open Water	\$22.00	TON
Residuals Cap - Open Water	\$22.00	TON
Backfill - Open Water	\$17.60	TON
Confined or Under Pier Placement	Ф26.20	TON
Base Cap	\$36.20 \$32.00	TON
Armor Organoclay Mat (Purchase and Place)	\$32.00	TON SF
EMNR Layer	\$45.30	TON
Residuals Cap	\$45.30	TON
Backfill	\$36.20	TON
In Situ Treatment	\$30.20	TON
In Situ Treatment - Open Water	\$4.50	SF
In Situ Treatment - Open Water  In Situ Treatment - Confined/Underpier	\$5.80	SF
DSL Land Purchase	\$142,877	ACRE
Mitigation (2)	φ142,077	- ACKE
On site	\$2,260,000	ACRE
Off site	\$350,000	ACRE
Disposal	<i>\$220</i> ,000	TICKE
Upland Subtitle D	\$79	TON
Upland Subtitle C	\$226	TON
In-Water CDF	\$87	CY
Total Direct Construction Costs (3)		
ndirect Construction Costs		
Design	15%	%
Daily Responsible Party oversight and project management	\$292,000	MONTHL
Daily Agency Oversight and project management and Project Management including Environmental		MONTH
Ionitoring	\$100,000	MONTHL
Engineering Support During Construction	\$78,000	MONTHL
Special Insurance, Bonding	5%	%
Total Indirect Construction Cost (4)		
Cotal Capital Costs (5)		
Contingency (6)	40%	%
ong Term Monitoring and Maintenance (7)		

# **Notes:**

General: With the exception of Long term Monitoring and Maintenance, sub-SMA Costs are presented for all Construction tasks included in this table.

- (1) Mobilization and Demobilizations costs are a percentage of the Total Direct Construction Costs
- (2) Mitigation Costs were determined on a SMA basis for each alternative. These costs were extrapolated to the sub-SMA level. Caution should be excercised interpreting these costs on a sub-SMA level.
- (3) The Total Direct Construction Cost is defined as the sum of the Direct Construction Tasks listed above.
- (4) The Total Indirect Construction Cost is defined as the sum of the Indirect Construction tasks listed above.
- (5) The Total Capital Cost is the Sum of The Total Direct and Indirect Construction Costs
- (6) The Contingency is defined as a percent of the Total Direct Construction Costs.
- (7) Due to the nature of Long Term Monitoring activities, the Long Term Monitoring and Maintenance costs are calculated on an alternative wide basis. The costs are presented on an alternative and SMA basis for each alternative. Caution should be excercised interpreting these numbers on a SMA basis. Due to the relative size of Long term monitoring events, and the size of sub-SMAs, these costs are not extrapolated to the sub-SMA level. Refer to table 1 for Long Term Monitoring and Maintenance Costs.
- (8) The Engineer's Opinion of Probable Cost is calculated for each sub-SMA, SMA, and Alternative. The sub-SMA level cost estimates presented in the Cost Tools Spreadsheet do not include modifications for a Net Present Value Analysis, or Long Term Monitoring and Maintenance Costs. Caution should be used interpreting sub-SMA level Cost Estimates.



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GRAND TOTALS	1 1		\$4,516.20		\$3,614.00	\$0.00			,076.00			\$750.00	\$13,956.
UNIT PRICES	1		\$3,010.80		\$2,409.34	\$0.00		\$3	,384.00			\$500.00	44.55
CLID CONTRD 1 CTCC	WORK TO	QUANTITY	UNIT		TOTAL					UNIT PRICE	TIPE		\$9,304.14
SUB-CONTRACTOR	PERFORM	UNITS	COST		COST	4				UNIT OF MEAS	SURE		Acre
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CLASSIFICATION	PERFORM	MEN	HOURS	RATE	COST	EQUIPMENT	PERFORM			HOURS		RATE	COST
Crane Operator		1	10		\$510.00								
Oiler		1	10		\$500.00								
Captain	Tug	1	10		\$540.00								
Laborer		3	10	\$37.00	\$1,110.00								
Work Boat Labor		1	10		\$370.00								
<u>Feamster</u>	0.00	1	10	\$37.00	\$370.00								
Operator	Offload	1	10	\$46.00	\$460.00								
17% OT			0		\$656.20								
BARE UNIT COST	\$3,010.80	TOTAL LABOR COST			\$4,516.20	BARE UNIT COS	\$0.00	(	Ó	TOTAL SES COS	T		\$0.
	i	QUANTITY	UNIT		TOTAL		WORK TO	FUEL	TOTAL	TOTAL		HRLY	TOTAL
MATERIAL / SERVICES		UNITS	COST		COST	RENTAL EQUIP			UNITS	HOURS		RATE	COST
Fuel / Oil / Grease		405	\$4.00				Removal	120	1		10	\$111.00	\$1,110
PPE		9	\$15.00		\$135.00		Move	150	1		10	\$60.00	\$600
Equipment Repair	7%	1	\$216.30			Work Boat	D 1 1	15	1		10	\$56.00	\$560
Oil Boom (FT)		250	\$2.00		\$500.00		Debris	0			10	\$68.00	\$680
Debris Curtain (FT)		250	\$3.50		\$875.00	PC 300 long front	Unload	60	1		10	\$54.00 \$50.00	\$540 \$500
						Dump Truck	Move	60	1		10	\$30.00	\$320
						Clam Buck (10 cy)	111010	0			10	\$39.00	\$390
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Table 3. Pile Removal

Table 3. Pile Remo	vai											
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			\$3,510.00		\$3,651.80			\$4	1,287.60		\$1,250.00	\$12,699.4
GRAND TOTALS			\$3,510.00		\$3,651.80	\$0.00			1,287.60		\$1,250.00	\$12,699.4
UNIT PRICES			\$140.40		\$146.07	\$0.00			\$171.50		\$50.00	
CLID CONTRD A CTOR	WORK TO	QUANTITY	UNIT		TOTAL					UNIT PRICE	)E	\$507.98
SUB-CONTRACTOR Pile Disposal	PEKFORM	UNITS 25	COST \$50.00		COST \$1,250.00					UNIT OF MEASUR OH&P	25%	EA \$635
The Disposar		23	\$30.00		\$0.00					Onai	2370	φ033
					\$0.00							
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BARE UNIT COST	\$50.00.7	TOTAL COST			\$0.00 \$1,250.00							
	WORK TO	TOTAL	TOTAL	HRLY	TOTAL	OWN	WORK TO	FIEL	TOTAL	TOTAL	HRLY	TOTAL
	PERFORM	MEN	HOURS	RATE	COST	EQUIPMENT			UNITS		RATE	COST
Crane Operator		1	10	\$51.00	\$510.00			0	1	(	+	
Operator		2		\$46.00	\$920.00			0		(		
Oiler		1	10	\$46.00	\$460.00			0		(		
Laborer		3	10	\$37.00	\$1,110.00			0		(		
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MATERIAL / SERVIC	CES	UNITS	COST	MEAS.		RENTAL EQUIP	PERFORM		UNITS		RATE	COST
Fuel / Oil / Grease Equipment Repairs 7%		345	\$ 4.00	GAL		150 Ton Crane Barge 200x50		120		10		
PPE	1	7	\$15.00			Tender 200 HP		20		10		
Oil Boom (FT)		250				Tug 800 HP		150		10		
Debris Curtain (FT)		250			\$1,250.00	Debris Barge		0	1	10	\$54.00	\$540.0
	1					ICE Vibratory		15		10		
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		-	\$5,545.80		\$68,863.18			\$5,227.2		\$0.00	\$79,636.1
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GRAND TOTALS			\$5,545.80 \$369.72		\$68,863.18 \$4,590.88	\$0.00		\$5,227.2		\$0.00 \$0.00	\$79,636.1
UNIT PRICES	WORK TO	QUANTITY				\$0.00	<u> </u>	\$348.4		\$0.00	\$5,200,09
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Operator		3	10	\$46.00	\$1,380.00			0		\$0.00	\$0.0
Oiler		2	10	\$50.00	\$1,000.00			0		\$0.00	\$0.0
Laborer		5	10	\$37.00	\$1,850.00			0		\$0.00	\$0.0
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MATERIAL / SERV Fuel / Oil / Grease	ICES	UNITS 425	COST \$ 4.00	MEAS. GAL		150 Ton Crane	PERFURIM	120		RATE ) \$111.00	COST \$1,110.0
Equipment Repairs 7	%	723	Ψ 4.00	GIL		Barge 200x50		0		3111.00	\$1,070.0
PPE		11	\$15.00		\$116.20	Tender 200 HP		20		\$16.00	
Oil Boom		250	\$2.00		\$500.00	Tug 800 HP		150	1 10	\$60.00	\$600.0
Debris Curtain		250	\$5.00			Debris Barge		0		\$54.00	
12" Dia. Replacemen	t Pile	15	\$4,000.00			ICE Vibratory		15	1 10		\$220.0
						Air compressor Welder/ Torch		20	1 10		\$50.0 \$220.0
						100 Ton Crane		80	1 10		
					\$0.00	100 Ion Clane		0		0 \$0.00	\$0.0
					\$0.00			0		\$0.00	\$0.
					\$0.00			0		\$0.00	\$0.
					\$0.00			0		0 \$0.00	
					\$0.00			0		\$0.00	
					\$0.00	TAX AT 8%	ļ	0		\$0.00	\$0.0
TAX AT 8%	Î							0		\$0.00	\$387.2



				ESTIN	MATE WORK	KSHEET 3.4					
BID DATE			PROJECT LOCATI	ION			<u> </u>	DECCDID	TEMPORARY DOC TION OF ITEM	K RELOC	ITEM NO
BIDDATE			FROJECT LOCATI	ION				DESCRIF	HON OF HEM		3.4
							<u> </u>				
						HOURS PER	SHIFTS PER	DAYS PER	DAILY UNI	T	DAYS REQ.
OTAL QUANTITY	1					SHIFT	DAY	WEEK	PRODUCTION I	RATE	COMPLET
ON PROPOSAL	Dock										
QUANTITY						10	1		1		1
ESTIMATE	+	TOTA	T	Т/	OTAL	10 TOTAL	I TO	6 TAL	TOTAL		1
WORKSHEET		LABO			TERIAL	EQUIPMENT	_	EQUIPMENT	SUB-CONTRAC	TOR	TOTAL
Wolfinging			\$4,914.00	1,111	\$3,793.50	EQUITIVE:	TUSI (TEST	\$4,460.40		558,170.55	\$71,338
CDAND TOTAL			¢4.014.00		¢2 702 50	<b>\$0.00</b>		¢4.4c0.40	d	50 170 55	¢71 220
GRAND TOTALS UNIT PRICES			\$4,914.00 \$4,914.00		\$3,793.50 \$3,793.50	\$0.00 \$0.00		\$4,460.40 \$4,460.40		558,170.55 558,170.55	\$71,338
OTHITRICES	WORK TO	QUANTITY	UNIT		TOTAL	φυ.υυ		ψτ,+υυ.40	UNIT PRICE	,170	\$71,338.4
UB-CONTRACTOR		UNITS	COST		COST				UNIT OF MEASUR	EE	Dock
10 Pile Replacement	-	10	\$5,309.08		\$53,090.78				OH&P	25%	\$89,173
10 Pile Removal		10	\$507.98		\$5,079.76						
					\$0.00						
					\$0.00						
					\$0.00 \$0.00						
BARE UNIT COST	\$58,170.55 T	OTAL COST			\$58,170.55						
LABOR	WORK TO	TOTAL	TOTAL	HRLY	TOTAL	OWN	WORK TO	FUEL TOTAL	TOTAL	HRLY	TOTAL
CLASSIFICATION	PERFORM	MEN	HOURS	RATE	COST	EQUIPMENT		GALS. UNITS	HOURS	RATE	COST
Crane Operator		1			\$510.00			0	0		\$0
Operator		3		\$46.00	\$1,380.00			0	0		\$0
Oiler		1	10	\$46.00 \$37.00				0	0		\$0 \$0
Laborer		3	10	\$37.00	\$1,850.00			0	0		\$0
								0	0		\$0
								0	0		\$0
								0	0		\$0
								0	0		\$0
	+							0	0		\$0 \$0
17% OT					\$714.00			0	0	· ·	\$0
BARE UNIT COST	\$4,914.00 T	OTAL LABOR COST				BARE UNIT COS	\$0.00	0	TOTAL SES COST	Ψ0.00	\$0
		QUANTITY	UNIT	UNIT OF	TOTAL		WORK TO	FUEL TOTAL	TOTAL	HRLY	TOTAL
MATERIAL / SERV	ICES	UNITS	COST	MEAS.	COST	RENTAL EQUIP	PERFORM			RATE	COST
Fuel / Oil / Grease		375	\$ 4.00	GAL		150 Ton Crane		120 1	10		\$1,110
Equipment Repairs 7	7%	10	\$15.00			Barge 200x50 Tender 200 HP		0 1 20 1	10		\$1,070
PPE Dil Boom		250				Tug 800 HP		150 1	10		\$160 \$600
Debris Curtain		250			\$1,250.00			0 1	10		\$540
					\$0.00	ICE Vibratory		15 1	10	\$22.00	\$220
						Air compressor		20 1	10		\$50
						Welder/ Torch		20 1	10		\$220
	-				\$0.00 \$0.00	Forklift		30 1	10		\$160 \$0
	+				\$0.00			0	0		\$(
					\$0.00			0	0		\$(
					\$0.00			0	0	\$0.00	\$(
					\$0.00			0	0		\$(
					\$0.00			0	0		\$0 \$330
TAX AT 8%	1				#A01 00	TAX AT 8%		0	0	\$0.00	



				EST	TIMATE WORKS	<b>HEET 5.2</b>						_
DID DATE	1		DD OIE CT L	OCATION!			1	D	ECCDID		heet Pile W	
BID DATE			PROJECT LO	JCATION				D	ESCRIP	TION OF ITEM		1TEM NO. 5.2
								D	PODLIC	CTION DATA		3.2
						HOURS PER	SHIFTS PER			DAILY UN	IT	DAYS REQ. TO
TOTAL QUANTITY	14	3 pairs per	r dav			SHIFT	DAY	WE		PRODUCTION		COMPLETE
ON PROPOSAL	LF	- rr.										
		Assume she	ets 80'									
QUANTITY						10	1		5	14		1
ESTIMATE		TOTA			TOTAL	TOTAL		OTAL		TOTAL		
WORKSHEET		LABO		N.	IATERIAL	EQUIPMENT	RENTED	_		SUB-CONTRA		TOTAL
WORKSHEET 5.2			\$4,800.00		\$1,756.51			\$5	,130.00		\$14,675.28	\$26,36
												<u> </u>
												\$
GRAND TOTALS			\$4,800.00		\$1,756.51	\$0.00		\$5	,130.00		\$14,675.28	\$26,36
UNIT PRICES	1		\$355.56		\$130.11	\$0.00			380.00		\$1,087.06	Ψ20,30
	WORK TO	QUANTITY	UNIT		TOTAL	+ 5100		4		UNIT PRIC		\$1,953
SUB-CONTRACTOR	PERFORM	UNITS	COST		COST					UNIT OF MEASUR		LF
Purchase and deliver steel sho		14			\$14,601					OH&P	25%	\$2,440
Remove sheet pile wall		14	\$433		\$5,843							
Salvage Cost		14	-\$427		-\$5,769							
					\$0							
					\$0							
	44.00=0.1				\$0							
BARE UNIT COST		TOTAL COST		T T	\$14,675.28	I)————————————————————————————————————	1					
LABOR	WORK TO	TOTAL	TOTAL	HRLY	TOTAL	OWN	WORK TO				HRLY	TOTAL
CLASSIFICATION	PERFORM	MEN 8	HOURS 10	\$37.00	COST \$2,960.00	EQUIPMENT	PERFORM	GALS.	UNITS	HOURS 0	RATE \$0.00	COST \$0.0
Laborer Operator		8	10		\$1,840.00			0		0		\$0.0
Operator		4	0		\$0.00			0		0	\$0.00	\$0.0
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.0
			0	\$0.00	\$0.00			0		0		\$0.0
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.0
			0	\$0.00	\$0.00			0		0	40.00	\$0.0
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.0
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.0
			0	Ψ0.00	\$0.00			0		0	+ 0.00	\$0.0
17% OT			0	\$0.00	\$0.00 \$0.00			0		0	\$0.00 \$0.00	\$0.0 \$0.0
BARE UNIT COST	00.00	TOTAL LABOR CO	Ü			BARE UNIT COS	2 \$0.00	v		TOTAL SES COST	\$0.00	\$0.0
DAKE UNIT COST	\$0.00	TOTAL LABOR CO QUANTITY	UNIT	<u> </u>	54,800.00 TOTAL	DAKE UNIT COS	WORK TO				HRLY	TOTAL
MATERIAL / SERVICES		UNITS	COST		COST	RENTAL EQUIP					RATE	COST
Fuel / Oil / Grease		345	\$ 4.00	GAL		150 Ton Crane	I LIGI OKWI	120		100K3		\$1,110.0
Equipment Repairs 7%		2.13	- 1.50	U. IL		Barge 200x50		0	1	10		\$1,070.0
PPE		12	\$15.00		\$93.80	Tender 200 HP		20	1	10		\$160.0
					\$0.00	Tug 800 HP		150	1	10		\$600.0
						ICE Vibratory		15	1	10		\$220.0
						Air compressor		20	1	10		\$470.0
						Welder/ Torch		20	1	10		\$50.0
					\$0.00 \$0.00	Material Barge		0	1	10		\$1,070.0 \$0.0
					\$0.00			0		0		\$0.0
					\$0.00		1	0		0		\$0.0
					\$0.00			0		0		\$0.0
					\$0.00			0		0		\$0.0
					\$0.00			0		0		\$0.0
					\$0.00			0		0	70.00	\$0.0
TAX AT 8%						TAX AT 8%		0		0		\$380.0
BARE UNIT COST	\$130 11	TOTAL MATERIAI	COST	· <u></u>	\$1,756.51	BARE UNIT COS	\$380.00	34	15	TOTAL RENTED EQ	UIP	\$5,130.



			F	ESTIMAT	E WORKSH	EET 5.1			CIT III OTTOR C	ENT ENTORS 4	T T AMERICAN
BID DATE	1	T	ROJECT LOCAT	ION				DESCRI	SILT CURTA PTION OF ITEM	IN INSTA	ITEM NO.
BIDDATE		Г	KOJECI LOCAI	ION				DESCRI	FIION OF ITEM		5.1
								PRODU	CTION DATA		
						HOURS PER	SHIFTS PER	DAYS PER		TI	DAYS REQ. T
TOTAL QUANTITY	750					SHIFT	DAY	WEEK	PRODUCTION	RATE	COMPLETI
ON PROPOSAL	LF										
OLIANTITY						10			750		
QUANTITY ESTIMATE		TOTAL		т	OTAL	TOTAL	I TO	TAL	750 TOTAL		1
WORKSHEET		LABOR			TERIAL	EOUIPMENT		TAL EQUIPMENT		CTOR	TOTAL
WORKSHEET 5.1	†	Litbox	\$2,808.00	14171	\$44,788.90	EQUI MENT	RENTED	\$1,252.8		\$2,800.00	
			, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			, ,		, ,	\$0.0
											\$0.0
											\$0.0
GRAND TOTALS			\$2,808.00		\$44,788.90	\$0.00		\$1,252.8		\$2,800.00	
UNIT PRICES	WORKE	OLIANITETEN	\$3.74	1	\$59.72	\$0.00		\$1.6		\$3.73	
SUB-CONTRACTOR	WORK TO PERFORM	QUANTITY UNITS	UNIT COST		TOTAL COST				UNIT PRIC		\$68.87 LF
WT Delivery	TERFORM	1	\$2,800.00		\$2,800.00				OH&P	25%	\$86
Denvery		-	Ψ2,000.00		\$0.00				Onci	2370	φοσ
					\$0.00						
					\$0.00						
					\$0.00						
					\$0.00						
BARE UNIT COST		TOTAL COST			\$2,800.00						
LABOR	WORK TO	TOTAL	TOTAL	HRLY	TOTAL	OWN		FUEL TOTA GALS. UNIT		HRLY	TOTAL
CLASSIFICATION Laborer	PERFORM	MEN 4	HOURS 10	\$37.00	COST \$1,480.00	EQUIPMENT	PERFORM	GALS. UNI		0 \$0.00	COST \$0.0
Operator	+	2	10		\$920.00			0		0 \$0.00	
Sperator		2	0	\$0.00	\$0.00			0		0 \$0.00	
			0	\$0.00	\$0.00			0		0 \$0.00	\$0.0
			0	\$0.00	\$0.00			0		0 \$0.00	
			0	\$0.00	\$0.00			0		0 \$0.00	
			0	\$0.00 \$0.00	\$0.00 \$0.00			0		0 \$0.00 0 \$0.00	
	+		0	\$0.00	\$0.00			0		0 \$0.00	
			0	\$0.00	\$0.00			0		0 \$0.00	
			0	\$0.00	\$0.00			0		0 \$0.00	
17% OT			0		\$408.00			0		0 \$0.00	\$0.0
BARE UNIT COST	\$0.00	TOTAL LABOR COST				BARE UNIT COS		0	TOTAL SES COST		\$0.0
		QUANTITY	UNIT		TOTAL		WORK TO	FUEL TOTA	AL TOTAL	HRLY	
MATERIAL / SERVICES	CAT	UNITS	COST			RENTAL EQUIP	PERFORM			RATE	COST
FOG Equipment Repair	GAL 7%	45	\$4.00 \$81.20			Work Boat Forklift		15 30	1 2.	0 \$56.00 5 \$16.00	
PPE	1 70	6	\$15.00		\$90.00	POIKIII		0		0 \$0.00	
Turbidity Curtains		800	\$51.40		\$41,120.00			0		0 \$0.00	
					\$0.00			0		0 \$0.00	
			-		\$0.00			0		0 \$0.00	
					\$0.00			0		0 \$0.00	
					\$0.00			0		0 \$0.00	
					\$0.00 \$0.00			0		0 \$0.00 0 \$0.00	
					\$0.00			0		0 \$0.00	
					\$0.00			0		0 \$0.00	
					\$0.00			0		0 \$0.00	
					\$0.00			0		0 \$0.00	\$0.0
			_	_	\$0.00			0		0 \$0.00	
TAX AT 8%					1	TAX AT 8%	ļ. l	0		0 \$0.00	



				<b>ESTIMA</b>	TE WORKS	SHEET 4.1		OPER	**/ A /***	D DDEDGING 1377	DD ANGROS	ATT.
BID DATE	I	n	ROJECT LOCAT	ION			1			<mark>R DREDGING AND '</mark> 'TION OF ITEM	FRANSPOR	ITEM NO.
DID DATE		r	ROJECT LOCATI	ION					ESCRI	TION OF HEM		4.1
								D	PODIIC	CTION DATA		7.1
						HOURS PER	SHIFTS PER		S PER	DAILY UN	IT	DAYS REQ. T
TOTAL QUANTITY	700					SHIFT	DAY		EEK	PRODUCTION		COMPLET
ON PROPOSAL	CY					SIII I	Dill	***	LIL	TROBECTION	MIL	COMILET
QUANTITY						10	1		5	700		1
ESTIMATE		TOTAL		TC	TAL	TOTAL	T	OTAL		TOTAL		
WORKSHEET		LABOR		MAT	TERIAL	EQUIPMENT	RENTED			SUB-CONTRAC		TOTAL
WORKSHEET 4.1			\$2,047.50		\$1,425.82	\$0.00		\$11	,944.80		\$3,500.00	\$18,918.
												\$0.0
												\$0.0
GD 11=======			44.6		<b></b>				011		00.701	\$0.0
GRAND TOTALS			\$2,047.50		\$1,425.82	\$0.00	1	\$11	,944.80		\$3,500.00	\$18,918.1
UNIT PRICES			\$2.93		\$2.04	\$0.00			\$17.06	<u></u>	\$5.00	44
avn ac	WORK TO	QUANTITY	UNIT		TOTAL					UNIT PRIC		\$27.03
SUB-CONTRACTOR	PERFORM	UNITS	COST		COST					UNIT OF MEASUR		CY
SURVEY/CREW/BOAT	L A CHI TET		\$12,000.00		\$2,000					OH&P	25%	\$33.8
SCOW HAUL TO OFFLOAD	FACILITY		\$1,500.00	TRIP	\$1,500							
BARE UNIT COST	\$0.00	TOTAL COST			\$3,500							
			TOTAL	IIDI M			WORK TO	PITEI	TOTAL	TOTAL	IIDI V	TOTAL
LABOR CLASSIFICATION	WORK TO PERFORM	TOTAL MEN	TOTAL HOURS	HRLY RATE	TOTAL COST	OWN EQUIPMENT	WORK TO PERFORM				HRLY RATE	TOTAL COST
Crane Operator	PERFORM	MEN 1	10 10			EQUIPMENT	PERFORM	GALS.	UNIIS	0	\$0.00	\$0.0
Oiler		1	10					0		0	\$0.00	\$0.0
Work Boat Laborer		1	10		\$370			0		0	\$0.00	\$0.0
Laborer		4	10					0		0	\$0.00	\$0.0
3400707			10	φ27.00	\$0			0		0	\$0.00	\$0.0
					\$0			0		0	\$0.00	\$0.0
					\$0			0		0	\$0.00	\$0.0
					\$0			0		0	\$0.00	\$0.0
					\$0			0		0	\$0.00	\$0.0
					\$0			0		0	\$0.00	\$0.0
					\$0			0		0	\$0.00	\$0.0
17% OT					\$298			0		0	\$0.00	\$0.0
BARE UNIT COST	\$4.73	TOTAL LABOR COST				BARE UNIT COS			)	TOTAL SES COST		\$0.0
		QUANTITY	UNIT		TOTAL		WORK TO	FUEL	TOTAL		HRLY	TOTAL
MATERIAL / SERVICES		UNITS	COST			RENTAL EQUIP	PERFORM			HOURS	RATE	COST
FOG	GAL	140	\$4.00			Derrick Rig	ļ	125		10	\$776.00	\$7,760.0
Equipment Repair	7%	1	\$655.20			Material Scow	1	0	_	20	\$85.00	\$1,700.0
PPE		7	\$15.00			Work Boat	1	15		20	\$56.00	\$1,120.0
					\$0.00	Clam Bucket		0		10	\$48.00 \$0.00	\$480.0 \$0.0
					\$0.00			0		0	\$0.00	\$0.0
					\$0.00			0		0	\$0.00	\$0.0
					\$0.00			0		0	\$0.00	\$0.0
					\$0.00		1	0		0	\$0.00	\$0.0
					\$0.00			0		0	\$0.00	\$0.
					\$0.00			0		0	\$0.00	\$0.
					\$0.00			0		0	\$0.00	\$0.
					\$0.00			0		0	\$0.00	\$0.
					\$0.00			0		0	\$0.00	\$0.0
					\$0.00			0		0	\$0.00	\$0.0
<u></u>					Ψ0.00		<u> </u>				\$0.00	Ψ0.
'AX AT 8%						TAX AT 8%		0		0	\$0.00	\$884.



Table 9. Confined Dredg	ing										
			E	STIMAT	E WORKS	<b>HEET 4.3</b>		CONFINED A	REA DREDGING & '	FR A NSPC	)RT
BID DATE		P	PROJECT LOCATI	ON					TION OF ITEM	IKANDI	ITEM NO.
											4.3
	i I							PRODUC	TION DATA		
						HOURS PER	SHIFTS PER		DAILY UNI	T	DAYS REQ. TO
TOTAL QUANTITY	300					SHIFT	DAY	WEEK	PRODUCTION I		COMPLETE
ON PROPOSAL	CY										
QUANTITY						10	1	6	300		1
ESTIMATE		TOTAL		TO	OTAL	TOTAL	TO	OTAL	TOTAL		
WORKSHEET		LABOR			ΓERIAL	EQUIPMENT	RENTED	EQUIPMENT	SUB-CONTRAC		TOTAL
WORKSHEET 4.3			\$2,082.60		\$546.26	\$0.00		\$6,328.80		\$2,500.00	\$11,457.66
											\$0.00
											\$0.00
GRAND TOTALS			\$2,082.60	ļ	\$546.26	\$0.00		\$6,328.80		\$2,500.00	\$11,457.66
UNIT PRICES			\$6.94	<u> </u>	\$1.82	\$0.00		\$21.10		\$8.33	
arm a	WORK TO	QUANTITY	UNIT		TOTAL				UNIT PRICE		\$38.19
SUB-CONTRACTOR	PERFORM	UNITS	COST	11777	COST	1			UNIT OF MEASUR		CY
SURVEY/CREW/BOAT	EACH IES		\$12,000.00		\$2,000				OH&P	25%	\$47.7
SCOW HAUL TO OFFLOAI	FACILITY		\$1,500.00	TRIP	\$500 \$0.00						
					\$0.00	-					
					\$0.00 \$0.00						
DADE UNIT COCT	¢0.22	TOTAL COST			\$2,500.00	-					
BARE UNIT COST		TOTAL COST	mom . I	TIDI II			WODE TO	ELIEL BORA	TOTAL I	TIDI X	TOTAL
LABOR CLASSIFICATION	WORK TO	TOTAL	TOTAL	HRLY	TOTAL COST	OWN EQUIPMENT		FUEL TOTAL GALS. UNITS		HRLY	TOTAL COST
	PERFORM	MEN 1	HOURS 10	\$54.00	\$540.00	EQUIPMENT	PERFORM	0 0		\$45.00	\$0.00
Dredge Operator Deck Hand	Dredge Deck Hand	2	20		\$740.00			0 0			\$0.00
Boat Operator	Wrk Boat	1	10		\$500.00			0 0			\$0.00
Bout Operator	WIK Bout	1	0		\$0.00			0	0		\$0.00
			0		\$0.00			0	0		\$0.00
			0	\$0.00	\$0.00			0	0		\$0.00
			0	\$0.00	\$0.00			0	0		\$0.00
			0	\$0.00	\$0.00			0	0		\$0.00
			0	\$0.00	\$0.00			0	0		\$0.00
			0	\$0.00	\$0.00			0	0		\$0.00
			0	\$0.00	\$0.00			0	0	+ 0.00	\$0.00
17% OT			0		\$302.60			0	0	\$0.00	\$0.00
BARE UNIT COST	\$6.94	TOTAL LABOR COST			. ,	BARE UNIT COS		0	TOTAL SES COST		\$0.00
		QUANTITY	UNIT		TOTAL		WORK TO	FUEL TOTAL	TOTAL	HRLY	
MATERIAL / SERVICES		UNITS	COST		COST	RENTAL EQUIP	PERFORM	GALS. UNITS	HOURS	RATE	COST
FOG	GAL	95	\$4.00			PC 600 Long Front		60 1	10		\$820.00
PPE	70.	4	\$15.00			Push Boat	Move	20 1	10		\$400.00
Equipment Repairs	7%	1	\$65.80			Work Boat		15 1	10		\$560.00
						Barge (10'*40')		0 4	10		\$1,240.00
						Scows Spuds		0 4	40		\$2,720.00 \$80.00
						Spuds Spud wells		0 4	40		\$40.00
					\$0.00	_		0 4	0		\$0.00
					\$0.00			0	0		\$0.00
					\$0.00			0	0		\$0.00
					\$0.00			0	0		\$0.00
					\$0.00			0	0		\$0.00
					\$0.00			0	0		\$0.00
					\$0.00			0	0		\$0.00
					\$0.00			0	0		\$0.00
TAX at 8%						TAX at 8%		0	0		\$468.80
1 AA at 070		, i									



			E	STIMAT	E WORKSI	HEET 4.2					
BID DATE		т	ROJECT LOCATI	ON					GING FROM SHORE TION OF ITEM	E & TRAN	ITEM NO.
DIDDATE		ı	ROJECT LOCATI	ION				DESCRIP	HON OF HEM		4.2
							1	DDODIIC'	TION DATA		7.2
						HOURS PER	SHIFTS PER		DAILY UNI	Т	DAYS REQ. T
TOTAL QUANTITY	300					SHIFT	Day	WEEK	PRODUCTION I		COMPLETI
ON PROPOSAL	CY						ĺ				
0.7.1.2.7											
QUANTITY ESTIMATE		TOTAI		Tr.(	OTAL	10 TOTAL	1	OTAL	300 TOTAL		1
WORKSHEET		LABOR			ΓERIAL	EQUIPMENT		EQUIPMENT	SUB-CONTRAC	TOP	TOTAL
WORKSHEET 4.2		LADOF	\$3,568.50	IVIA	\$3,501.36			\$2,916.00	30B-CONTRAC	\$0.00	
VORTEDIT 1.2			ψ3,300.30		ψυ,υστ.υσ	φ0.00		Ψ2,>10.00		ψ0.00	\$0.0
											\$0.0
											\$0.0
GRAND TOTALS			\$3,568.50		\$3,501.36	\$0.00		\$2,916.00		\$0.00	
UNIT PRICES		<del> </del>	\$11.90		\$11.67	\$0.00		\$9.72		\$0.00	
011D 0011=	WORK TO	QUANTITY	UNIT		TOTAL				UNIT PRICE		\$33.29
SUB-CONTRACTOR	PERFORM	UNITS	COST		COST				UNIT OF MEASUR		CY
					\$0.00 \$0.00				OH&P	25%	\$41.6
					\$0.00						
					\$0.00						
					\$0.00				<u> </u>		
					\$0.00						
BARE UNIT COST	\$0.00	TOTAL COST			\$0.00						
LABOR	WORK TO	TOTAL	TOTAL	HRLY	TOTAL	OWN		FUEL TOTAL		HRLY	TOTAL
CLASSIFICATION	PERFORM	MEN	HOURS	RATE	COST	EQUIPMENT	PERFORM	GALS. UNITS		RATE	COST
Operator		1	10		\$460.00			0	0		
Laborer		3	10		\$1,110.00			0	0		
Teamster		4	10		\$1,480.00 \$0.00			0	0	40.00	
			0		\$0.00			0	0		
			0		\$0.00			0	0		
			0	\$0.00	\$0.00			0	0		
			0	\$0.00	\$0.00			0	0		
			0	\$0.00	\$0.00			0	0		
			0	+ 0.00	\$0.00			0	0		
70/ OF			0	\$0.00	\$0.00			0	0	Ψ0.00	
7% OT BARE UNIT COST	\$11.00	TOTAL LADOD COST	0		\$518.50	BARE UNIT COS	90.00	0	TOTAL SES COST	\$0.00	
DAKE UNII CUSI	\$11.90	TOTAL LABOR COST  QUANTITY	UNIT		\$3,568.50 TOTAL			0 FUEL TOTAL		HRLY	\$0.0 TOTAL
MATERIAL / SERVICES		UNITS	COST			RENTAL EQUIP				RATE	COST
FOG	GAL	90	\$4.00			PC 600 Long Front		60 1	10		
EQUIPMENT REPAIRS	7%	1	\$147.00			Dump Truck	Trans	30 4	40		
PPE		8	\$15.00		\$120.00	Hydraulic Clam Bucket	Dredge	0 1	10		\$600.0
Poly		1	\$500.00		\$500.00			0	0		
Diamataceous earth		23	\$94.00		\$2,115.00		1	0	0		
					\$0.00 \$0.00		1	0	0		
					\$0.00			0	0		
					\$0.00			0	0		
					\$0.00			0	0		
					\$0.00			0	0		
					\$0.00			0	0		
			·		\$0.00			0	0		
					\$0.00			0	0		
				I	\$0.00	I	1	0	0	\$0.00	\$0.0
CAX AT 8%		-		<b>├</b> ───-}		TAX AT 8%		0	0		



			1	ESTIMA	TE WORKS	SHEET 4.4					.1511	
BID DATE	1	DI.	ROJECT LOCATI	ON				Г	FSCRIE	Residu PTION OF ITEM	al Dredging	ITEM NO.
DID DITTE		11	COJECT LOCATI	011					LICKII	HOIVOI HEM		4.4
								P	RODUC	CTION DATA		
						HOURS PER	SHIFTS PER		S PER	DAILY UN	IT	DAYS REQ. TO
TOTAL QUANTITY	250					SHIFT	DAY		EEK	PRODUCTION		COMPLETE
ON PROPOSAL	CY											
OLI A NITHTY						10				250		
QUANTITY ESTIMATE	1	TOTAL		Tr	OTAL	10 TOTAL	1	OTAL	6	250 TOTAL		1
WORKSHEET		LABOR			TERIAL	EQUIPMENT	RENTED		MENIT	SUB-CONTRA	СТОР	TOTAL
WORKSHEET 4.4		LABOR	\$2,047.50	IVIA	\$1,425.82	\$0.00			,944.80	SUB-CONTRA	\$500.00	\$15,918.1
WORRDINEET III			Ψ2,017.30		ψ1,123.02	Ψ0.00		ΨΙΙ	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Ψ500.00	\$0.0
												\$0.0
												\$0.0
GRAND TOTALS			\$2,047.50		\$1,425.82	\$0.00		\$11	,944.80		\$500.00	\$15,918.1
UNIT PRICES			\$8.19		\$5.70	\$0.00			\$47.78		\$2.00	
	WORK TO		UNIT		TOTAL					UNIT PRIC		\$63.67
SUB-CONTRACTOR	PERFORM	UNITS	COST		COST					UNIT OF MEASUR		CY
SCOW HAUL TO OFFLOA	D FACILITY		\$1,500.00	TRIP	\$500					OH&P	25%	\$79.6
							<u> </u>					
BARE UNIT COST	\$0.00	TOTAL COST			\$500							
LABOR	WORK TO		TOTAL	HRLY	TOTAL	OWN	WORK TO	FUEL	TOTAL	TOTAL	HRLY	TOTAL
CLASSIFICATION	PERFORM		HOURS	RATE	COST	EQUIPMENT	PERFORM			HOURS	RATE	COST
Crane Operator		1	10	\$51.00				0		0	\$0.00	
Oiler		1	10					0		0	\$0.00	
Work Boat Laborer		1	10					0		0	\$0.00	\$0.0
Laborer		4	10	\$37.00				0		0	\$0.00	\$0.0
					\$0			0		0	\$0.00 \$0.00	\$0.0 \$0.0
					\$0 \$0			0		0	\$0.00	
					\$0			0		0	\$0.00	
					\$0			0		0	\$0.00	\$0.0
					\$0			0		0	\$0.00	
					\$0			0		0	\$0.00	
17% OT					\$298			0		0	\$0.00	
BARE UNIT COST	\$4.73	TOTAL LABOR COST				BARE UNIT COS				TOTAL SES COST		\$0.0
MARROLAL /CERTICES		QUANTITY	UNIT		TOTAL	DENIE AT FOR	WORK TO	FUEL	TOTAL	TOTAL	HRLY	
MATERIAL / SERVICES FOG	GAL	UNITS 140	COST \$4.00			RENTAL EQUIP Derrick Rig	PERFORM	GALS.		HOURS 10	\$776.00	COST \$7,760.0
Equipment Repair	7%	140	\$4.00 \$655.20			Material Scow		125		20		
PPE	1 70	7	\$15.00			Work Boat	<del>                                     </del>	15				
		,	Ψ15.00			Clam Bucket		0		10		
					\$0.00			0		0	\$0.00	\$0.0
					\$0.00			0		0		
					\$0.00			0		0	\$0.00	\$0.0
					\$0.00			0		0	\$0.00	
					\$0.00 \$0.00			0		0	\$0.00 \$0.00	
					\$0.00		-	0		0	\$0.00	
					\$0.00			0		0	\$0.00	
					\$0.00			0		0	\$0.00	
					\$0.00			0		0	\$0.00	
					\$0.00			0		0	\$0.00	
ΓAX AT 8%						TAX AT 8%		0		0	\$0.00	\$884.8
BARE UNIT COST	\$5.70	TOTAL MATERIAL COS	T		\$1,425.82	BARE UNIT COS	\$47.78	1-	40	TOTAL RENTED EQ	UIP	\$11,944.8



				ESTIMAT	E WORKSHI	EET 6.3			~ <b>~</b> ·	• • • • • • • • • • • • • • • • • • •	
BID DATE			PROJECT LOCAT	TION				DESCRIP	STABI ΓΙΟΝ OF ITEM	LIZATIO	N ITEM NO.
DIDDAIL			I KOJLET LOCA	1011				DESCRIT	HON OF TIEM		6.3
								PRODUC	ΓΙΟΝ DATA		0.0
						HOURS PER	SHIFTS PER		DAILY UNI	Т	DAYS REQ. T
TOTAL QUANTITY	700					SHIFT	DAY	WEEK	PRODUCTION	RATE	COMPLETI
ON PROPOSAL	CY										
QUANTITY						10	1	6	700		1
ESTIMATE		TOTAL			OTAL	TOTAL		OTAL	TOTAL		
WORKSHEET		LABOR		MA	TERIAL	EQUIPMENT		EQUIPMENT	SUB-CONTRAC		TOTAL
VORKSHEET 6.3			\$4,715.10		\$5,745.60	\$0.00		\$7,084.80		\$0.00	\$17,545.
											\$0.0 \$0.0
											\$0.0
GRAND TOTALS			\$4,715.10		\$5,745.60	\$0.00		\$7,084.80		\$0.00	\$17,545.3
UNIT PRICES			\$6.74		\$8.21	\$0.00		\$10.12		\$0.00	Ψ11,575
	WORK TO	QUANTITY	UNIT		TOTAL	\$0.00		Ψ10.1 <b>2</b>	UNIT PRIC		\$25.07
SUB-CONTRACTOR	PERFORM	UNITS	COST		COST				UNIT OF MEASUR		CY
		27.22.0			\$0.00				OH&P	25%	\$31.3
					\$0.00						
					\$0.00						
					\$0.00						
					\$0.00						
					\$0.00						
BARE UNIT COST		TOTAL COST			\$0.00						
LABOR	WORK TO	TOTAL	TOTAL	HRLY	TOTAL	OWN		FUEL TOTAL	TOTAL	HRLY	TOTAL
CLASSIFICATION	PERFORM	MEN	HOURS	RATE	COST	EQUIPMENT	PERFORM	GALS. UNITS	HOURS	RATE	COST
Foreman		1	10	\$54.00	\$540.00			0	0		\$0.0
Crane Operator	Crane	1	10	\$51.00	\$510.00			0	0		\$0.0 \$0.0
Operator Oiler	PC 300	1	10 10	\$46.00 \$50.00	\$460.00 \$500.00			0	0		\$0.
Fug Captain		1	10	\$54.00	\$540.00			0	0		\$0.
Deck Hand		1	10	\$37.00	\$370.00			0	0		\$0.
Work Boat		1	10	\$37.00	\$370.00			0	0		\$0.
Laborer		2	10	\$37.00	\$740.00			0	0		\$0.
			0	\$0.00	\$0.00			0	0		\$0.
			0	\$0.00	\$0.00			0	0	\$0.00	\$0.
			0	\$0.00	\$0.00			0	0	40.00	\$0.
17% OT			0		\$685.10			0	0	\$0.00	\$0.
BARE UNIT COST	\$6.74	TOTAL LABOR COST				BARE UNIT COS			TOTAL SES COST		\$0.
		QUANTITY	UNIT		TOTAL		WORK TO	FUEL TOTAL	TOTAL	HRLY	
MATERIAL / SERVICES	~	UNITS	COST			RENTAL EQUIP	PERFORM			RATE	COST
OG	GAL	290	\$4.00			Crane w/Barge		125 1	10		\$2,250.
Portland Cement		115	\$35 \$15.00			Material Barge Transfer Barge		0 3	30 10		\$1,620. \$540.
PPE		9	\$15.00			Lash Barges		0 1		\$143.00	\$540. \$1,430.
						Tug Boat 200 HP		150 1	10		\$1,430. \$160.
						Work Boat		15 1	10		\$560.
					\$0.00			0	0		\$0.
					\$0.00			0	0		\$0.
				_	\$0.00			0	0	\$0.00	\$0.
								0		00.00	\$0.
					\$0.00			0	0		
					\$0.00			0	0	\$0.00	\$0.
					\$0.00 \$0.00			0	0	\$0.00 \$0.00	\$0. \$0.
					\$0.00 \$0.00 \$0.00			0 0 0	0 0 0	\$0.00 \$0.00 \$0.00	\$0. \$0. \$0.
					\$0.00 \$0.00 \$0.00 \$0.00			0 0 0	0 0 0	\$0.00 \$0.00 \$0.00 \$0.00	\$0. \$0. \$0. \$0.
AX AT 8%					\$0.00 \$0.00 \$0.00 \$0.00 \$0.00	TAX AT 8%		0 0 0	0 0 0	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00	\$0. \$0. \$0.



			E	STIMAT	E WORKSHI	EET 6.1			g.c	vana=	
BID DATE	1	ח	ROJECT LOCATI	ON				DECCDID	SCOW TRA TION OF ITEM	NSPORT.	ATION ITEM NO.
DID DATE		r	ROJECT LOCATI	ON				DESCRIP	TION OF ITEM		6.1
					Ī		<u> </u>	PRODUC	TION DATA		0.1
						HOURS PER	SHIFTS PER		DAILY UNI	Т	DAYS REQ. T
TOTAL QUANTITY	40					SHIFT	DAY	WEEK	PRODUCTION		COMPLETE
ON PROPOSAL	MILE										
QUANTITY						10	1	6	40		1
ESTIMATE		TOTAL		TO	OTAL	TOTAL	TO	OTAL	TOTAL		
WORKSHEET		LABOR		MA	ΓERIAL	EQUIPMENT		EQUIPMENT	SUB-CONTRAC		TOTAL
WORKSHEET 6.1			\$2,400.00		\$850.18	\$0.00		\$777.60		\$0.00	
											\$0.0
											\$0.0
			44 400 00		4070 10	40.00				40.00	\$0.0
GRAND TOTALS			\$2,400.00		\$850.18	\$0.00		\$777.60		\$0.00	
UNIT PRICES	MODAL = 2	OTT : Name -	\$60.00		\$21.25	\$0.00	<u> </u>	\$19.44		\$0.00	
GLID CONTED 1 CEROS	WORK TO	QUANTITY	UNIT		TOTAL				UNIT PRIC		\$100.69
SUB-CONTRACTOR	PERFORM	UNITS	COST		COST				UNIT OF MEASUR		MILE
					\$0.00 \$0.00				OH&P	25%	\$126
					\$0.00						
					\$0.00						
					\$0.00						
					\$0.00						
BARE UNIT COST	00.02	TOTAL COST			\$0.00						
LABOR		TOTAL	TOTAL	HRLY	TOTAL	OWN	WORK TO	FUEL TOTAL	TOTAL	IIDI V	TOTAL
CLASSIFICATION	WORK TO PERFORM	MEN	HOURS	RATE	COST	EQUIPMENT		GALS. UNITS		HRLY RATE	COST
Operator	FERTORNI	IVIEN 1	10 10	\$46.00	\$460.00	EQUIFMENT	FERIORM	0	0		
Work Boat Laborer	1	1	10	\$37.00	\$370.00			0	0		
Laborer		2	10	\$37.00	\$370.00			0	0		
		_	0	\$0.00	\$0.00			0	0		
			0	\$0.00	\$0.00			0	0		
			0	\$0.00	\$0.00			0	0		
			0	\$0.00	\$0.00			0	0		
			0	\$0.00	\$0.00			0	0	\$0.00	\$0.0
			0	\$0.00	\$0.00			0	0		
			0	\$0.00	\$0.00			0	0		
			0	\$0.00	\$0.00			0	0		
17% OT			0		\$1,200.00			0	0	\$0.00	
BARE UNIT COST	\$60.00	TOTAL LABOR COST				BARE UNIT COS		0	TOTAL SES COST		\$0.0
		QUANTITY	UNIT		TOTAL	DELVELY FOLUE	WORK TO	FUEL TOTAL	TOTAL	HRLY	
MATERIAL / SERVICES	CAI	UNITS	COST			RENTAL EQUIP				RATE	COST
FOG	GAL 10%	165	\$4.00			Tug Boat 200 HP Work Boat		150 1	10		
Boat Repairs Equipment Repairs	7%	1	\$56.00 \$11.20		\$36.00			15 1	0		
PPE	7 70	4	\$15.00		\$60.00			0	0		
		4	φ15.00		\$0.00			0	0		
					\$0.00			0	0		
					\$0.00			0	0		
					\$0.00			0	0		
					\$0.00			0	0		
					\$0.00			0	0		
					\$0.00			0	0		
<u> </u>					\$0.00			0	0		
					\$0.00			0	0		
					\$0.00			0	0	\$0.00	\$0.0
ΓΑΧ at 8%					\$0.00	TAX AT 8%		0	0	\$0.00	\$0.0



			E	STIMAT	TE WORKSI	HEET 6.5					
DVD D LITT			DOTE OF LOCATION					PEGGDID		ic Offload	
BID DATE		P	ROJECT LOCATI	ION				DESCRIP	TION OF ITEM		ITEM NO.
	1					1		PRODUC	TION DATA		6.5
						HOURS PER	SHIFTS PEF		DAILY UNI	т	DAVE DEO. T
TOTAL QUANTITY	1,500					SHIFT	Day	WEEK	PRODUCTION F		DAYS REQ. T COMPLETE
ON PROPOSAL	CY					511111	Day	WEEK	TRODUCTION	XAIL	COMILETT
QUANTITY						10	1	6	1,500		1
ESTIMATE		TOTAL		T	OTAL	TOTAL	TO	OTAL	TOTAL		Ì
WORKSHEET		LABOR		MA	TERIAL	EQUIPMENT	RENTED	EQUIPMENT	SUB-CONTRAC	TOR	TOTAL
WORKSHEET 6.5			\$2,421.90		\$954.40	\$0.00		\$3,358.80		\$0.00	\$6,735.1
											\$0.0
											\$0.0
											\$0.0
GRAND TOTALS			\$2,421.90		\$954.40	\$0.00		\$3,358.80		\$0.00	
UNIT PRICES			\$1.61		\$0.64	\$0.00		\$2.24		\$0.00	
<u> </u>	WORK TO	QUANTITY	UNIT		TOTAL				UNIT PRICE		\$4.49
SUB-CONTRACTOR	PERFORM	UNITS	COST		COST				UNIT OF MEASUR		CY
					\$0.00				OH&P	25%	\$5.6
					\$0.00						
					\$0.00						
					\$0.00						
					\$0.00						
					\$0.00						
BARE UNIT COST		TOTAL COST			\$0.00						
LABOR	WORK TO	TOTAL	TOTAL	HRLY	TOTAL	OWN		FUEL TOTAL		HRLY	TOTAL
CLASSIFICATION	PERFORM	MEN	HOURS	RATE	COST	EQUIPMENT	PERFORM	GALS. UNITS		RATE	COST
Operator	Offload	1	10		\$460.00			0	0		
Laborer	Offload	3	10	\$37.00	\$1,110.00		1	0	0		
Oiler	Oiler	1	10	\$50.00	\$500.00			0	0	\$0.00 \$0.00	
			0	\$0.00 \$0.00	\$0.00 \$0.00			0	0		
			0	\$0.00	\$0.00			0	0		
			0	\$0.00	\$0.00			0	0		
			0	\$0.00	\$0.00			0	0	\$0.00	
			0	\$0.00	\$0.00			0	0	\$0.00	
			0	\$0.00	\$0.00			0	0		
			0	\$0.00	\$0.00			0	0		
17% OT			0		\$351.90			0	0	\$0.00	
BARE UNIT COST	\$1.61	TOTAL LABOR COST		•	\$2,421.90	BARE UNIT COS	\$ \$0.00	0	TOTAL SES COST	•	\$0.00
		QUANTITY	UNIT		TOTAL		WORK TO	FUEL TOTAL	TOTAL	HRLY	TOTAL
MATERIAL / SERVICES		UNITS	COST		COST	RENTAL EQUIP	PERFORM	GALS. UNITS	HOURS	RATE	COST
FOG	GAL	160	\$4.00		\$640.00	100 Ton Crane	Offload	80 1	10		
EQUIPMENT REPAIRS	7%	1	\$168.70			High Solids Pump		40 1	10		
PPE		5	\$15.00			Diffuser Barge		0 1		\$107.00	
						Push Boat	Move	20 1	10		
						Pipe Welder		20 1	10		
					\$0.00			0	0		
					\$0.00			0	0		
					\$0.00			0	0		
					\$0.00		-	0	0		
					\$0.00 \$0.00		-	0	0		
					\$0.00			0	0		
					\$0.00			0	0		
					\$0.00			0	0		
					\$0.00			0	0		
TAX AT 8%					1	TAX AT 8%	+	0	0		
IAA A I 0%					4,0.70	0/0	1	~			



Table 15. Open Water C	apping											
				I	ESTIMATE WORK	KSHEET 7.1				OPEN W	VATER CAP	PING
BID DATE			PROJECT L	OCATION				Ι	ESCRIP	TION OF ITEM	TIER CIT	ITEM NO. <b>7.1</b>
									PRODU	CTION DATA		,,,,
TOTAL QUANTITY	1.500					HOURS PER SHIFT	SHIFTS PER		S PER	DAILY UN		DAYS REQ. TO COMPLETE
ON PROPOSAL	1,500 Ton					SHIFT	DAY	WE	EEK	PRODUCTION	KAIE	COMPLETE
QUANTITY						10	1		5	1,500		1
ESTIMATE		TOTAL	L		TOTAL	TOTAL	-	ΓΟΤΑL		TOTAL		
WORKSHEET		LABO		N	IATERIAL	EQUIPMENT	RENTEI	_ `		SUB-CONTRA	CTOR	TOTAL
WORKSHEET 7.1			\$3,545.10		\$2,066.69	\$0.00		\$1	3,510.80		\$2,000.00	
												\$0.0
												\$0.0
CD AND TOTAL C			<b>#2.545.10</b>		<b>#2</b> 0.00 00	#0.00		<b>#</b> 1	2.510.00		# <b>2</b> 000 00	\$0.0
GRAND TOTALS UNIT PRICES			\$3,545.10		\$2,066.69	\$0.00		\$1	3,510.80		\$2,000.00 \$1.33	\$21,122.5
UNII PRICES	WORK TO	OHANTTTA	\$2.36 UNIT		\$1.38 TOTAL	\$0.00			\$9.01	UNIT PRIC		
SUB-CONTRACTOR	WORK TO PERFORM		COST		COST					UNIT OF MEASUR		\$14.08 Ton
Survey/ Crew/ Boat	FERIORNI	UNIIS	COST		\$2,000.00		Rase (15	500 Ton /	day)	OH&P	25%	\$17.6
Darrey/ Clew/ Doar					\$2,000.00		Armor (1			OH&P	25%	\$15.5
					\$0.00		7 IIIIIOI (1	700 1011	uu <sub>j</sub> ,	Onci	2370	Ψ13.3
					\$0.00							
					\$0.00							•
					\$0.00							
BARE UNIT COST	\$0.00	TOTAL COST			\$2,000.00							
LABOR	WORK TO	TOTAL	TOTAL	HRLY	TOTAL	OWN	WORK TO	FUEL	TOTAL	TOTAL	HRLY	TOTAL
CLASSIFICATION	PERFORM	MEN	HOURS	RATE	COST	EQUIPMENT	PERFORM	GALS.	UNITS	HOURS	RATE	COST
Crane Operator		1	10	\$51.00	\$510.00			0		0	\$0.00	
Deck Hand		4	40	\$37.00	\$1,480.00			0		0	\$0.00	
Tug Captain		1	10	\$54.00	\$540.00			0		0	\$0.00	
Oiler		1	10	\$50.00	\$500.00			0		0	\$0.00	
			0	\$0.00	\$0.00			0		0	\$0.00	
			0	\$0.00 \$0.00	\$0.00 \$0.00			0		0	\$0.00 \$0.00	
			0		\$0.00			0		0	\$0.00	
			0		\$0.00			0		0	\$0.00	
			0	\$0.00	\$0.00			0		0	\$0.00	
			0		\$0.00			0		0	\$0.00	
17% OT			0	7 010 0	\$515.10			0		0	\$0.00	
BARE UNIT COST	\$2.36	TOTAL LABOR COS	ST		\$3,545.10	BARE UNIT COS	\$ \$0.00	(	)	TOTAL SES COST		\$0.0
		QUANTITY	UNIT		TOTAL		WORK TO	FUEL	TOTAL		HRLY	TOTAL
MATERIAL / SERVICES		UNITS	COST		COST	RENTAL EQUIP		GALS.	UNITS	HOURS	RATE	COST
FOG	GAL	290	\$4.00		\$1,160.00	Derrick Rig		125		10		
Equipment Repair	7%	1	\$663.60			Material Scow		0		30		
PPE		6	\$15.00		\$90.00			150		10		
						Work Boat		15		20		
						Clam Bucket		0		10		
					\$0.00 \$0.00			0		0	\$0.00 \$0.00	
					\$0.00			0		0	\$0.00	
					\$0.00			0		0	\$0.00	
					\$0.00			0		0	\$0.00	
					\$0.00			0		0	\$0.00	
					\$0.00			0		0	\$0.00	
					\$0.00			0		0	\$0.00	
					\$0.00			0		0	\$0.00	
					\$0.00			0		0	\$0.00	
TAX AT 8%						TAX AT 8%		0		0	\$0.00	\$1,000.8
BARE UNIT COST	\$1.38	TOTAL MATERIAL	COST		\$2,066.69	BARE UNIT COS	\$ \$9.01	29	90	TOTAL RENTED EQ	UIP	\$13,510.8



Table 16 EMNR Laver Placement

				E	STIMATE WORKS	SHEET 7.1.1						
BID DATE	1		PROJECT L	OCATION				г	ECCDID	TION OF ITEM	Layer Placer	nent ITEM NO.
BID DATE			TROJECTE	OCATION				L	LISCKII	HON OF HEM		7.1.1
							•		PRODU	CTION DATA		
momity of the same	4.200						SHIFTS PEI			DAILY UN		DAYS REQ. TO
TOTAL QUANTITY ON PROPOSAL	1,200 Ton					SHIFT	DAY	WE	EEK	PRODUCTION	RATE	COMPLETE
OIVI KOI OBAL	Ton											
QUANTITY						10	1		5	1,200		1
ESTIMATE		TOTAL			TOTAL	TOTAL		TOTAL		TOTAL	aman	mom. r
WORKSHEET WORKSHEET 7.1.1		LABOR	\$3,545.10	N	ATERIAL \$2,066.69	EQUIPMENT \$0.00	RENTEI		3,510.80	SUB-CONTRA	\$2,000.00	TOTAL \$21,122.5
WORKSHEET 7.1.1			\$5,545.10		\$2,000.09	\$0.00		φ1	3,310.60		\$2,000.00	\$0.
												\$0.0
												\$0.0
GRAND TOTALS UNIT PRICES			\$3,545.10 \$2.95		\$2,066.69 \$1.72	\$0.00 \$0.00		\$1	3,510.80 \$11.26		\$2,000.00 \$1.67	\$21,122.5
UNIT PRICES	WORK TO	QUANTITY	UNIT \$2.95	ı	TOTAL	\$0.00			\$11.26	UNIT PRIC		\$17.60
SUB-CONTRACTOR	PERFORM	UNITS	COST		COST					UNIT OF MEASUR		Ton
Survey/ Crew/ Boat					\$2,000.00		Base (12	200 Ton /	day)	OH&P	25%	\$22.0
					\$0.00							
					\$0.00 \$0.00							
					\$0.00							
					\$0.00							
BARE UNIT COST	\$0.00	TOTAL COST			\$2,000.00							
LABOR	WORK TO	TOTAL	TOTAL	HRLY	TOTAL	OWN	WORK TO		TOTAL	TOTAL	HRLY	TOTAL
CLASSIFICATION	PERFORM	MEN	HOURS	RATE	COST	EQUIPMENT	PERFORM		UNITS	HOURS	RATE	COST
Crane Operator Deck Hand		1	10 40	\$51.00 \$37.00	\$510.00 \$1,480.00			0		0	\$0.00 \$0.00	\$0.0 \$0.0
Tug Captain		1	10	\$54.00	\$540.00			0		0	\$0.00	\$0.0
Oiler		1	10	\$50.00	\$500.00			0		0	\$0.00	\$0.0
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.0
			0	\$0.00 \$0.00	\$0.00 \$0.00			0		0	\$0.00 \$0.00	\$0.0 \$0.0
			0		\$0.00			0		0	\$0.00	\$0.0
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.0
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.0
170/ OT			0	\$0.00	\$0.00			0		0	\$0.00	\$0.0
17% OT BARE UNIT COST	\$2.05	TOTAL LABOR COS	0 T		\$515.10 \$3.545.10	BARE UNIT COS	\$0.00	0	)	TOTAL SES COST	\$0.00	\$0.0 \$0.0
BARE UNIT COST	\$2.93	QUANTITY QUANTITY	UNIT		TOTAL	BARE UNIT COS	WORK TO				HRLY	TOTAL
MATERIAL / SERVICES		UNITS	COST			RENTAL EQUIP				HOURS	RATE	COST
FOG	GAL	290	\$4.00			Derrick Rig		125		10	\$776.00	\$7,760.0
Equipment Repair	7%	1	\$663.60			Material Scow		150		30	\$85.00	
PPE		6	\$15.00		\$90.00 \$0.00	Tug Work Boat		150 15		10 20	\$60.00 \$56.00	
						Clam Bucket		0		10	\$48.00	
					\$0.00			0		0	\$0.00	\$0.0
					\$0.00			0		0	\$0.00	\$0.0
					\$0.00 \$0.00			0		0	\$0.00 \$0.00	\$0.4 \$0.4
					\$0.00			0		0	\$0.00	\$0.0
					\$0.00			0		0	\$0.00	\$0.
					\$0.00			0		0	\$0.00	
					\$0.00			0		0	\$0.00	\$0.
					\$0.00 \$0.00			0		0	\$0.00 \$0.00	\$0.0 \$0.0
TAX AT 8%						TAX AT 8%		0		0	\$0.00	
BARE UNIT COST	\$1.72	TOTAL MATERIAL	COST			BARE UNIT COS	\$11.26			TOTAL RENTED EQ	UIP	\$13,510.5



Table 17. Residuals Cap Placement

				IR:	STIMATE WORK	SHEET 7.1.2						
				10	STIMATE WORK	31LE1 7.1.2					ls Cap Place	ment
BID DATE			PROJECT L	OCATION				Е	DESCRIP	TION OF ITEM		ITEM NO.
	<u> </u>			1					DDODII	CETION DATE		7.1.2
						HOURS PER	CHIETE DEI			CTION DATA DAILY UN	TT	DAYS REQ. TO
TOTAL QUANTITY	1,200					SHIFT	SHIFTS PEF DAY	DAYS WE		PRODUCTION		COMPLETE
ON PROPOSAL	Ton					SIII I	Dill	***	LIK	TRODUCTION	WIIL	COMPLETE
QUANTITY						10	1	(	5	1,200		1
ESTIMATE		TOTA			TOTAL	TOTAL		ΓΟΤΑL		TOTAL		
WORKSHEET		LABO		N	MATERIAL #2.066.60	EQUIPMENT	RENTEL	_ `		SUB-CONTRA		TOTAL
WORKSHEET 7.1.2			\$3,545.10		\$2,066.69	\$0.00		\$1	3,510.80		\$2,000.00	\$21,122.5 \$0.0
												\$0.0
												\$0.0
GRAND TOTALS			\$3,545.10		\$2,066.69	\$0.00		\$1	3,510.80		\$2,000.00	\$21,122.5
UNIT PRICES			\$2.95		\$1.72	\$0.00			\$11.26		\$1.67	
	WORK TO	QUANTITY	UNIT		TOTAL					UNIT PRIC		\$17.60
SUB-CONTRACTOR	PERFORM	UNITS	COST		COST		<b>.</b>	100 F		UNIT OF MEASUR		Ton
Survey/ Crew/ Boat					\$2,000.00 \$0.00		Base (12	200 Ton /	day)	OH&P	25%	\$22.0
	1				\$0.00							
					\$0.00							
					\$0.00		L			<u> </u>		
					\$0.00							
BARE UNIT COST	\$0.00	TOTAL COST			\$2,000.00							
LABOR	WORK TO	TOTAL	TOTAL	HRLY	TOTAL	OWN	WORK TO		TOTAL		HRLY	TOTAL
CLASSIFICATION	PERFORM	MEN	HOURS	RATE	COST	EQUIPMENT	PERFORM		UNITS	HOURS	RATE	COST
Crane Operator Deck Hand		1	10 40	\$51.00 \$37.00	\$510.00 \$1,480.00			0		0	\$0.00 \$0.00	\$0.0 \$0.0
Tug Captain			10	\$54.00	\$540.00			0		0	\$0.00	\$0.0
Oiler		1	10	\$50.00	\$500.00			0		0	\$0.00	\$0.0
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.0
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.0
			0		\$0.00			0		0	\$0.00	\$0.0
			0	\$0.00 \$0.00	\$0.00 \$0.00			0		0	\$0.00 \$0.00	\$0.0 \$0.0
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.0
			0		\$0.00			0		0	\$0.00	\$0.0
17% OT			0		\$515.10			0		0	\$0.00	\$0.0
BARE UNIT COST	\$2.95	TOTAL LABOR CO	ST		\$3,545.10	BARE UNIT COS	\$0.00	(	)	TOTAL SES COST		\$0.0
		QUANTITY	UNIT		TOTAL		WORK TO			TOTAL	HRLY	TOTAL
MATERIAL / SERVICES	CAL	UNITS	COST			RENTAL EQUIP	PERFORM			HOURS	RATE	COST
FOG Equipment Repair	GAL 7%	290	\$4.00 \$663.60			Derrick Rig Material Scow		125		10 30	\$776.00 \$85.00	
PPE	7 70	6			\$90.00			150		10	\$60.00	
			Ψ12.00			Work Boat		150		20	\$56.00	
					\$0.00	Clam Bucket		0	1	10	\$48.00	\$480.0
					\$0.00			0		0	1	
					\$0.00			0		0	\$0.00	\$0.0
					\$0.00 \$0.00			0		0	\$0.00 \$0.00	\$0.0 \$0.0
					\$0.00			0		0	\$0.00	\$0.0
					\$0.00			0		0	\$0.00	
					\$0.00			0		0	\$0.00	\$0.
-		-			\$0.00			0		0	\$0.00	\$0.0
					\$0.00			0		0	\$0.00	
TAV AT 00/					\$0.00	TAY AT 00/		0		0	\$0.00	
TAX AT 8% BARE UNIT COST		ΓΟΤΑL MATERIAL	COGT			TAX AT 8% BARE UNIT COS	\$11.26	29		TOTAL RENTED EQ	\$0.00	\$1,000.8 \$13,510.8



Table 18 Backfill Placement

				E	STIMATE WORK	SHEET 7.1.3				BACKFII	LL PLACEN	MENT
BID DATE			PROJECT L	OCATION				D	ESCRIP	TION OF ITEM		ITEM NO. <b>7.1.3</b>
									PRODU	CTION DATA		
							SHIFTS PEI			DAILY UN		DAYS REQ. T
TOTAL QUANTITY ON PROPOSAL	1,500 Ton					SHIFT	DAY	WE	EK	PRODUCTION	RATE	COMPLETE
QUANTITY						10	1	6	5	1,500		1
ESTIMATE		TOTAL			TOTAL	TOTAL		TOTAL		TOTAL	omo n	
WORKSHEET VORKSHEET 7.1.3		LABOR	\$3,545.10	N	ATERIAL \$2,066.69	EQUIPMENT \$0.00		D EQUIPN	3,510.80	SUB-CONTRA	\$2,000.00	TOTAL \$21,122
VORKSHEET 7.1.5			\$5,545.10		\$2,000.09	\$0.00		<b>\$1.</b>	3,310.60		\$2,000.00	\$21,122
												\$0
												\$0
GRAND TOTALS			\$3,545.10	•	\$2,066.69	\$0.00		\$13	3,510.80		\$2,000.00	\$21,122
UNIT PRICES			\$2.36		\$1.38	\$0.00			\$9.01		\$1.33	
	WORK TO	QUANTITY	UNIT		TOTAL					UNIT PRIC		\$14.08
SUB-CONTRACTOR	PERFORM	UNITS	COST		COST		D /11	500 T	4	UNIT OF MEASUR		Ton
Survey/ Crew/ Boat					\$2,000.00 \$0.00		Base (13	500 Ton /	day)	OH&P	25%	\$17.60
					\$0.00							
					\$0.00						1	
					\$0.00					<u> </u>		
					\$0.00							
BARE UNIT COST		TOTAL COST			\$2,000.00							
LABOR	WORK TO	TOTAL	TOTAL	HRLY	TOTAL		WORK TO		TOTAL		HRLY	TOTAL
CLASSIFICATION	PERFORM	MEN	HOURS	RATE	COST	EQUIPMENT	PERFORM		UNITS	HOURS	RATE	COST
Crane Operator	-	1	10	\$51.00	\$510.00			0		0	\$0.00	\$0
Deck Hand Fug Captain		4	40 10	\$37.00 \$54.00	\$1,480.00 \$540.00			0		0	\$0.00 \$0.00	\$0 \$0
Diler		1	10	\$50.00	\$500.00			0		0	\$0.00	\$0
, iici		1	0	\$0.00	\$0.00			0		0	\$0.00	\$0
			0	\$0.00	\$0.00			0		0	\$0.00	\$0
			0	\$0.00	\$0.00			0		0	\$0.00	\$0
			0		\$0.00			0		0	\$0.00	\$0
			0	\$0.00	\$0.00			0		0	\$0.00	\$0
			0	\$0.00 \$0.00	\$0.00 \$0.00			0		0	\$0.00 \$0.00	\$0 \$0
7% OT			0	\$0.00	\$515.10			0		0	\$0.00	\$(
BARE UNIT COST	\$2.36	TOTAL LABOR COS				BARE UNIT COS	\$0.00	0		TOTAL SES COST	φοισσ	\$(
	·	QUANTITY	UNIT		TOTAL		WORK TO	FUEL	TOTAL	TOTAL	HRLY	TOTAL
MATERIAL / SERVICES		UNITS	COST			RENTAL EQUIP	PERFORM	GALS.	UNITS	HOURS	RATE	COST
OG	GAL	290	\$4.00			Derrick Rig		125		10	\$776.00	\$7,760
Equipment Repair	7%	1	\$663.60			Material Scow		0	-		\$85.00	\$2,550
PE		6	\$15.00		\$90.00	Tug Work Boat		150		10	\$60.00	
						Work Boat Clam Bucket		15		20	\$56.00 \$48.00	\$1,120 \$480
					\$0.00	Claim Bucket		0		0	\$0.00	\$480
					\$0.00			0		0	\$0.00	\$(
					\$0.00			0		0	\$0.00	\$(
					\$0.00			0		0	\$0.00	\$(
					\$0.00			0		0	\$0.00	
					\$0.00			0		0	\$0.00	
					\$0.00 \$0.00			0		0	\$0.00 \$0.00	\$(
					\$0.00			0		0	\$0.00	\$0
					\$0.00			0		0	\$0.00	
CAX AT 8%					1	TAX AT 8%		0		0	\$0.00	
SARE UNIT COST	\$1.38	TOTAL MATERIAL	COST	Į.		BARE UNIT COS	\$9.01			TOTAL RENTED EQ		\$13,510



			1	ESTIMAT	TE WORKS	<b>HEET 7.2</b>				~~~~	ADEL SI	DDING
BID DATE		n n	ROJECT LOCAT	ION			<u> </u>	DE	SCODE	CONFINED TION OF ITEM	AREA CA	
BID DATE	+	PI	KOJECI LUCAT	IUN				DE	ESCKIP	HON OF HEM		7.2
	1					1		DD	ODLIC	TION DATA		1.2
						HOURS PER	SHIFTS PER			TION DATA DAILY UN	IТ	DAYS REQ. TO
TOTAL QUANTITY	500					SHIFT	DAY	WE		PRODUCTION		COMPLETE
ON PROPOSAL	TON					Simi	DAT	WE	LK	TRODUCTION	KATE	COMILETT
QUANTITY						10	1	6	:	500		1
ESTIMATE		TOTAL		TO	TAL	TOTAL	TO	OTAL		TOTAL		1
WORKSHEET		LABOR			TERIAL	EQUIPMENT	RENTED		IENT	SUB-CONTRA	CTOR	TOTAL
WORKSHEET 7.2		Eribor	\$3,159.00	1,11,1	\$1,439.53		REIVIED		894.80	BCB CONTIEN	\$2,000.00	\$14,493.3
WORKISHEET 7.2			ψ3,137.00		φ1,137.33	φο.σσ		Ψ1,	07 1.00		Ψ2,000.00	\$0.0
												\$0.0
												\$0.0
GRAND TOTALS	+ +		\$3,159.00		\$1,439.53	\$0.00		\$7	894.80		\$2,000.00	\$14,493.3
UNIT PRICES	+		\$6.32		\$2.88	\$0.00			\$15.79		\$4.00	\$2.,175.5
	WORK TO	QUANTITY	UNIT		TOTAL	\$5.50	<u> </u>			UNIT COS		\$28.99
SUB-CONTRACTOR	PERFORM	UNITS	COST		COST				ŀ	UNIT OF MEASUR		TON
Survey/ Crew/ Boat	I Eld Oldvi	CIVIIS	6051		\$2,000.00		Base (500	0 Ton / d	av)	OH&P	25%	\$36.20
survey, elem Bout					\$0.00		Armor (5			OH&P	25%	\$32.00
					\$0.00		1 111101 (0		, /	011661	20,0	φ22.00
					\$0.00							
					\$0.00		ı					I.
					\$0.00							
BARE UNIT COST	\$4.00	TOTAL COST			\$2,000.00							
LABOR	WORK TO	TOTAL	TOTAL	HRLY	TOTAL	OWN	WORK TO	Ellei p	ΓΩΤΔΙ	TOTAL	HRLY	TOTAL
CLASSIFICATION	PERFORM	MEN	HOURS	RATE	COST	EQUIPMENT	PERFORM			HOURS	RATE	COST
500 Hoe Operator	Hoe	1	10		\$460.00		TERT ORWI	0	0	10000		\$0.0
Fug Captain	1100	1	10		\$540.00			0	0	10		\$0.0
Boat Operator		1	10		\$500.00			0	0	10	\$10.00	\$0.0
Deck Hand		2	10		\$740.00			0	Ŭ	0		\$0.0
Felebelt Operator	Place Cap	1	10	\$46.00	\$460.00			0		0		\$0.0
· · · · · · · · · · · · · · · · · · ·			0		\$0.00			0		0		\$0.0
			0	\$0.00	\$0.00			0		0		\$0.0
			0	\$0.00	\$0.00			0		0		\$0.0
			0	\$0.00	\$0.00			0		0		\$0.0
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.0
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.0
17% OT			0		\$459.00			0		0	\$0.00	\$0.0
BARE UNIT COST	\$6.32	TOTAL LABOR COST			\$3,159.00	BARE UNIT COS		0		TOTAL SES COST		\$0.0
		QUANTITY	UNIT		TOTAL		WORK TO	FUEL 7	ΓΟΤΑΙ	TOTAL	HRLY	TOTAL
MATERIAL / SERVICES		UNITS	COST			RENTAL EQUIP				HOURS	RATE	COST
FOG	GAL	285	\$4.00		\$1,140.00		Load	60	1	10		\$820.0
Equipment Repairs	7%	1	\$102.90		\$102.90			150	1	10		\$160.0
PPE		6	\$15.00		\$90.00	Work Boat		15	1	10		\$560.0
						Barge		0	6	60		\$3,240.0
						Scows		0	2	20		\$1,360.0
<u> </u>						Push Boat	Move	20	1	10		\$400.0
			- <del></del>			Spuds		0	4	40		\$80.0
						Spud wells		0	4	40		\$40.0
						Telebelt		40	1	10		\$650.0
					\$0.00			0	0	0		\$0.0
					\$0.00			0	0	0		\$0.0
					\$0.00			0		0		\$0.0
			- <del></del>		\$0.00			0		0		\$0.0
					\$0.00			0		0		\$0.0
					\$0.00			0		0		\$0.0
ΓAX AT 8%						TAX at 8%		0		0		\$584.8
BARE UNIT COST	ΦΦ 00 5	TOTAL MATERIAL COS	T		¢1 /30 53	BARE UNIT COS	\$15.79	28	5 T	TOTAL RENTED EQ	AT ITE	\$7,894.



		acement									
			E	STIMATI	E WORKSE	<b>IEET 7.2.1</b>			CONFINE	D AREA EI	MNR
BID DATE		Pi	ROJECT LOCAT	ION				DESCRIP	TION OF ITEM	D AKEA E	ITEM NO.
DID DITTE		1.	ROJECT ECCTI	1011				DESCRI	HOLV OF HEAD		7.2.1
							1	PRODUC	TION DATA		7,2,1
						HOURS PER	SHIFTS PER		DAILY UN	ſΤ	DAYS REQ. TO
TOTAL QUANTITY	400					SHIFT	DAY	WEEK	PRODUCTION		COMPLETE
ON PROPOSAL	TON										
QUANTITY						10	1	6	400		1
ESTIMATE		TOTAL		TC	TAL	TOTAL	TO	OTAL	TOTAL		
WORKSHEET		LABOR		MAT	ERIAL	EQUIPMENT	RENTED	EQUIPMENT	SUB-CONTRAC	CTOR	TOTAL
WORKSHEET 7.2.1			\$3,159.00		\$1,439.53	\$0.00		\$7,894.80		\$2,000.00	\$14,493.33
											\$0.00
											\$0.00
											\$0.00
GRAND TOTALS			\$3,159.00		\$1,439.53	\$0.00		\$7,894.80		\$2,000.00	\$14,493.33
UNIT PRICES			\$7.90		\$3.60	\$0.00		\$19.74	<u> </u>	\$5.00	
	WORK TO	QUANTITY	UNIT		TOTAL				UNIT COS		\$36.23
SUB-CONTRACTOR	PERFORM	UNITS	COST		COST				UNIT OF MEASUR	E	TON
Survey/ Crew/ Boat					\$2,000.00		Base (400	0 Ton / day)	OH&P	25%	\$45.30
					\$0.00						
					\$0.00						
					\$0.00						
					\$0.00						
					\$0.00						
BARE UNIT COST	\$5.00	TOTAL COST			\$2,000.00						
LABOR	WORK TO	TOTAL	TOTAL	HRLY	TOTAL	OWN		FUEL TOTAL	TOTAL	HRLY	TOTAL
CLASSIFICATION	PERFORM	MEN	HOURS	RATE	COST	EQUIPMENT	PERFORM	GALS. UNITS	HOURS	RATE	COST
600 Hoe Operator	Hoe	1	10		\$460.00			0 0	10	\$45.00	\$0.00
Tug Captain		1	10		\$540.00			0 0	10	\$100.00	\$0.00
Boat Operator		1	10		\$500.00			0 0	10	\$10.00	\$0.00
Deck Hand		2	10		\$740.00			0	0	\$0.00	\$0.00
Telebelt Operator	Place Cap	1	10		\$460.00			0	0	\$0.00	\$0.00
			0	+0.00	\$0.00			0	0	\$0.00	\$0.00
			0	+0.00	\$0.00			0	0	\$0.00	\$0.00
			0	+0.00	\$0.00			0	0	\$0.00	\$0.00
			0		\$0.00			0	0	\$0.00	\$0.00
			0	+0.00	\$0.00			0	0	\$0.00	\$0.00
17% OT			0		\$0.00 \$459.00			0	0	\$0.00 \$0.00	\$0.00 \$0.00
BARE UNIT COST	\$7.00	TOTAL LABOR COCT	0			DADE UNIT COC	1 00 00		0	\$0.00	
BARE UNIT COST	\$7.90	TOTAL LABOR COST	LINITE	1 1		BARE UNIT COS	1	1	TOTAL SES COST	IIDI M	\$0.00
MATERIAL / CERVICES		QUANTITY	UNIT COST		TOTAL	RENTAL EQUIP		FUEL TOTAL	TOTAL	HRLY	TOTAL
MATERIAL / SERVICES FOG	GAL	UNITS 285	\$4.00		\$1,140.00		Load	60 1	HOURS 10	RATE \$82.00	COST \$820.00
Equipment Repairs	7%	283	\$102.90		\$1,140.00		Load	150 1	10		\$160.00
PPE	1 70	6	\$102.90			Work Boat		150 1	10	\$16.00	\$160.00
1112	+	0	\$13.00		\$50.00	Barge		0 6	60	\$54.00	\$3,240.00
					\$0.00	Scows		0 2	20	\$68.00	\$1,360.00
							Move	20 1	10	\$40.00	\$400.00
						Spuds	1.1010	0 4	40	\$2.00	\$80.00
						Spud wells		0 4	40	\$1.00	\$40.00
						Telebelt		40 1	10	\$65.00	\$650.00
					\$0.00			0 0	0		\$0.00
					\$0.00			0 0	0	\$0.00	\$0.00
					\$0.00			0	0	\$0.00	\$0.00
					\$0.00			0	0		\$0.00
					\$0.00			0	0		\$0.00
				1	\$0.00			0	0	\$0.00	\$0.00
	J	l			\$0.00			U	U	\$0.00	Ψ0.00
TAX AT 8%						TAX at 8%		0	0	\$0.00	\$584.80



			E	STIMATI	E WORKSE	HEET 7.2.2					DE 4 DE 2	DYLLY C
BID DATE		D	ROJECT LOCAT	ION			1	Г	ECCDII	CONFINED A PTION OF ITEM	REA RES	IDUALS ITEM NO.
DID DATE		Γ.	ROJECT LOCAT	ION				L	LSCKII	TION OF ITEM		7.2.2
						1		P	RODUC	CTION DATA		7.2.2
						HOURS PER	SHIFTS PEF		S PER	DAILY UNI	Т	DAYS REQ. TO
TOTAL QUANTITY	400					SHIFT	DAY		EEK	PRODUCTION		COMPLETE
ON PROPOSAL	TON					51111	2111	,,,,		THODOGITOIT		COMPERIE
QUANTITY						10	1		6	400		1
ESTIMATE	1	TOTAL		TC	TAL	TOTAL	T	OTAL	0	TOTAL		1
WORKSHEET		LABOR			ERIAL	EQUIPMENT	RENTED		MENT	SUB-CONTRAC	CTOR	TOTAL
WORKSHEET 7.2.2		<u> </u>	\$3,159.00	1/11.11	\$1,439.53			_	,894.80	BOB CONTINUE	\$2,000.00	
			, , , , , , , , , , , , , , , , , , , ,		. ,				,		, ,	\$0.0
												\$0.0
												\$0.0
GRAND TOTALS			\$3,159.00		\$1,439.53	\$0.00		\$7	7,894.80		\$2,000.00	\$14,493.3
UNIT PRICES			\$7.90		\$3.60	\$0.00			\$19.74		\$5.00	
	WORK TO	QUANTITY	UNIT		TOTAL					UNIT COST	Γ	\$36.23
SUB-CONTRACTOR	PERFORM	UNITS	COST		COST					UNIT OF MEASUR	E	TON
Survey/ Crew/ Boat					\$2,000.00		Base (40	0 Ton /	day)	OH&P	25%	\$45.30
					\$0.00							
					\$0.00							
					\$0.00							
					\$0.00							
					\$0.00							
BARE UNIT COST		TOTAL COST			\$2,000.00							
LABOR	WORK TO	TOTAL	TOTAL	HRLY	TOTAL	OWN	WORK TO				HRLY	TOTAL
CLASSIFICATION	PERFORM	MEN	HOURS	RATE	COST	EQUIPMENT	PERFORM				RATE	COST
600 Hoe Operator	Hoe	1	10		\$460.00			0			\$45.00	
Tug Captain		<u> </u>	10		\$540.00			0				
Boat Operator		2	10 10		\$500.00 \$740.00			0		10	\$10.00 \$0.00	
Deck Hand Telebelt Operator	Place Cap	1	10		\$460.00			0		0		
тегерен Орегатог	1 lace Cap	1	0		\$0.00			0		0		
			0		\$0.00			0		0		
			0		\$0.00			0		0		
			0	\$0.00	\$0.00			0		0		
			0		\$0.00			0		0		
			0	\$0.00	\$0.00			0		0	\$0.00	\$0.0
17% OT			0		\$459.00			0		0	\$0.00	\$0.0
BARE UNIT COST	\$7.90	TOTAL LABOR COST				BARE UNIT COS			0	TOTAL SES COST		\$0.0
		QUANTITY	UNIT		TOTAL		WORK TO	FUEL	TOTAL	TOTAL	HRLY	
MATERIAL / SERVICES		UNITS	COST			RENTAL EQUIP					RATE	COST
FOG	GAL	285	\$4.00		\$1,140.00		Load	60		10		
Equipment Repairs	7%	1	\$102.90		\$102.90			150		10		
PPE		6	\$15.00			Work Boat		15		10		
						Barge Scows		0				
						Push Boat	Move	20		10		
						Spuds	1,10,10	0		40		
						Spud wells		0				
						Telebelt		40		10		
					\$0.00			0				
					\$0.00			0	0	0		
					\$0.00			0		0	\$0.00	\$0.0
					\$0.00			0		0		
					\$0.00			0		0		
					\$0.00			0		0		
ΓAX AT 8%						TAX at 8%		0		0		
BARE UNIT COST	¢2.00	TOTAL MATERIAL COS	T2		\$1,439.53	BARE UNIT COS	\$19.74	2	85	TOTAL RENTED EQ	UIP	\$7,894.8



Table 22. Confined Bac	kfill Placeme	ent									
			E	ESTIMATI	E WORKSH	HEET 7.2.3					
BID DATE		,	PROJECT LOCAT	ION			1	DECCDII	CONFINED PTION OF ITEM	AREA BAC	ITEM NO.
BID DATE		<u>.</u>	FROJECT LOCAT	ION				DESCRI	TION OF TIEM		7.2.3
						Ì		PRODUC	CTION DATA		7,210
						HOURS PER	SHIFTS PEF	DAYS PER	DAILY UN		DAYS REQ. T
TOTAL QUANTITY	500					SHIFT	DAY	WEEK	PRODUCTION	RATE	COMPLETE
ON PROPOSAL	TON										
QUANTITY						10	1	6	500		1
ESTIMATE		TOTAI	L	TC	TAL	TOTAL	TO	OTAL	TOTAL		
WORKSHEET		LABOR			ERIAL	EQUIPMENT		EQUIPMENT	SUB-CONTRA		TOTAL
WORKSHEET 7.2.3			\$3,159.00		\$1,439.53	\$0.00		\$7,894.80		\$2,000.00	
											\$0.0 \$0.0
											\$0.0
GRAND TOTALS			\$3,159.00	1	\$1,439.53	\$0.00		\$7,894.80		\$2,000.00	\$14,493.3
UNIT PRICES			\$6.32		\$2.88	\$0.00		\$15.79		\$4.00	
	WORK TO	QUANTITY	UNIT		TOTAL				UNIT COS		\$28.99
SUB-CONTRACTOR	PERFORM	UNITS	COST		COST		D (50)	O.T / d)	UNIT OF MEASUR		TON
Survey/ Crew/ Boat					\$2,000.00 \$0.00		Base (50	0 Ton / day)	OH&P	25%	\$36.30
					\$0.00						
					\$0.00						
					\$0.00						
DADE INHE COOR	<b>#4.00</b>	TOTAL COST			\$0.00	31					
BARE UNIT COST LABOR		TOTAL COST TOTAL	TOTAL	HRLY	\$2,000.00 TOTAL	OWN	WORK TO	FUEL TOTAL	TOTAL	IIDI V	TOTAL
CLASSIFICATION	WORK TO PERFORM	MEN	HOURS	RATE	COST	EQUIPMENT		GALS. UNITS		HRLY RATE	COST
600 Hoe Operator	Hoe	1	10		\$460.00		I LKI OKW	0 0			\$0.0
Tug Captain		1	10		\$540.00			0 0			\$0.00
Boat Operator		1	10		\$500.00			0 0			\$0.0
Deck Hand	DI C	2	10		\$740.00			0	0		\$0.0
Telebelt Operator	Place Cap	1	10		\$460.00 \$0.00			0	0		\$0.0 \$0.0
			0		\$0.00			0			\$0.0
			0		\$0.00			0	C		\$0.0
			0	1	\$0.00			0	C		\$0.0
			0	+0.00	\$0.00			0	0	+0.00	\$0.0
17% OT			0	\$0.00	\$0.00 \$459.00			0	0	\$0.00 \$0.00	\$0.0 \$0.0
BARE UNIT COST	\$6.32	TOTAL LABOR COST	0			BARE UNIT COS	\$0.00	0	TOTAL SES COST	ψ0.00	\$0.0
<u> </u>	Ψ0.52	QUANTITY	UNIT		TOTAL			FUEL TOTAL		HRLY	TOTAL
MATERIAL / SERVICES		UNITS	COST		COST	RENTAL EQUIP	PERFORM	GALS. UNITS	HOURS	RATE	COST
FOG	GAL	285	\$4.00		\$1,140.00		Load	60 1	10		\$820.0
Equipment Repairs	7%	1	\$102.90		\$102.90			150 1	10		\$160.0
PPE		6	\$15.00			Work Boat Barge		15 1 0 6	10		\$560.0 \$3,240.0
					\$0.00	Scows		0 2	20	· · · · · · · · · · · · · · · · · · ·	\$1,360.0
					\$0.00	Push Boat	Move	20 1	10	\$40.00	\$400.0
						Spuds		0 4	40		\$80.0
						Spud wells		0 4	40		\$40.0
					\$0.00	Telebelt		0 0	10		\$650.0 \$0.0
					\$0.00			0 0	·		\$0.0
					\$0.00			0	0		\$0.0
					\$0.00		-	0	C		\$0.0
					\$0.00			0	C		\$0.0
	1	i			do 00			Δ.		ተለ ለሳ	
TAX AT 8%					\$0.00 \$106.63	TAX at 8%		0	C		\$0.0 \$584.8



				ESTIMA	TE WORKSHE	ET 7.3					
										OCLAY M	
BID DATE			PROJECT LOCA	ATION				DESCRIP	TION OF ITEM		ITEM NO.
						1					7.3
						HOUDG DED	GIHERE DEL		TION DATA	T/T	DAMA DEC. T
TOTAL QUANTITY	12,000					HOURS PER SHIFT	SHIFTS PER DAY	DAYS PER WEEK	DAILY UN PRODUCTION		DAYS REQ. TO COMPLETE
ON PROPOSAL	12,000 SF					SHIPT	DAT	WEEK	PRODUCTION	KATE	COMPLETE
QUANTITY						10	1	6	12,000		1
ESTIMATE		TOTAL			TOTAL	TOTAL		OTAL SOLUTION (ENTERNIT	TOTAL	OTTO D	TOTAL.
WORKSHEET		LABOI	\$4,083.30	ML	ATERIAL \$35,964.00	EQUIPMENT \$0.00		EQUIPMENT \$3,207.60	SUB-CONTRA	\$12,000.00	TOTAL \$55,254.9
			\$4,065.50		\$33,904.00	\$0.00	'	\$3,207.00		\$12,000.00	\$5,525.4
											\$0.0
											\$0.0
GRAND TOTALS			\$4,083.30		\$35,964.00	\$0.00		\$3,207.60		\$12,000.00	\$60,780.3
UNIT PRICES			\$0.34		\$3.00	\$0.00		\$0.27		\$1.00	
	WORK TO	QUANTITY	UNIT		TOTAL				UNIT PRIC		\$5.07
SUB-CONTRACTOR	PERFORM	UNITS	COST		COST				UNIT OF MEASUE		SF
Divers		1	\$10,000.00		\$10,000.00			Open (200/ On)	OH&P	25%	\$6.30
Survey/ Crew/ Boat	+				\$2,000.00 \$0.00		Contined	(30% Open)	OH&P	25%	\$21.10
					\$0.00						
					\$0.00						
					\$0.00						
BARE UNIT COST	\$1.00	TOTAL COST			\$12,000.00						
LABOR	WORK TO	TOTAL	TOTAL	HRLY	TOTAL	OWN	WORK TO	FUEL TOTAL	TOTAL	HRLY	TOTAL
CLASSIFICATION	PERFORM	MEN	HOURS	RATE	COST	EQUIPMENT	PERFORM	GALS. UNITS	HOURS	RATE	COST
Tug Captain		1	10	\$54.00	\$540.00			0	(		\$0.0
Crane Operator		1	10	\$51.00	\$510.00			0	C		\$0.0
Oiler		1	10 10	\$50.00 \$46.00	\$500.00 \$460.00			0	(		\$0.0 \$0.0
Operator Labor	+	1	10	\$46.00	\$1,480.00			0	(		\$0.0
Labor		7	0		\$0.00			0	(		\$0.0
			0	\$0.00	\$0.00			0	C		\$0.0
			0	\$0.00	\$0.00			0	C	\$0.00	\$0.0
			0	\$0.00	\$0.00			0	C		\$0.0
			0	\$0.00	\$0.00			0	C		\$0.0
170/ OT			0	\$0.00	\$0.00			0	0		\$0.0
17% OT BARE UNIT COST	\$0.24	TOTAL LABOR COST	0		\$593.30	BARE UNIT COS	00.02	0	TOTAL SES COST	\$0.00	\$0.0 \$0.0
DAKE UNII COSI	\$0.34	QUANTITY QUANTITY	UNIT		TOTAL			FUEL TOTAL		HRLY	TOTAL
MATERIAL / SERVICES		UNITS	COST		COST	RENTAL EQUIP	PERFORM	GALS UNITS	HOURS	RATE	COST
FOG	GAL	195	\$4.00		\$780.00		T EIG OIGH	150 1	10		
Reactive Core Mat (15% los		12,000	\$2.70			Crane w/ Barge		0 1	10		\$1,110.0
PPE		8	\$15.00			Material Barge		0 1	10		\$540.0
					\$0.00	Forklift		30 1	10		\$160.0
						Work Boat		15 1	10		\$560.0
	+				\$0.00 \$0.00			0	0		\$0.0 \$0.0
					\$0.00			0	(		\$0.0
					\$0.00			0			\$0.0
	İ				\$0.00			0	C		\$0.0
					\$0.00			0	(		\$0.0
<u> </u>					\$0.00			0	(		\$0.0
					\$0.00			0	0		\$0.0
					\$0.00			0	0		\$0.0
TAX AT 8%					\$0.00	TAX at 8%		0	0		\$0.0 \$237.6
1 A A 1 0 70					\$2,004.00	BARE UNIT COS		U	I	JU.UU	\$237.0



Table 24. Upland Subtitle D Landfill Disposal Cost Buildup

Task	Unit	Quantity	Unit Cost	Total Cost	Basis/Notes
Transload Facility Development					
Transload facility permitting	LS	1	\$40,000	\$5,000	(1); Based on past experience normalized over total landfill disposal volume
Transload facility development	LS	1	\$7,500,000	\$863,000	(1,2); One time cost normalized over total estimated landfill disposal volume
Yearly property lease rate	ACRE	20	\$23,500	\$470,000	(3); Lease rate based on Port of Portland T6 public records.
Yearly gondola mobilization	Cars	500	\$4,000	\$2,000,000	(4); Car mobilization price from Waste Management
Materials Handling and Stabilization					
Materials handling from barge to upland stockpile	TON	345,000	\$6	\$2,070,000	(5); Offloading rate based on crane on dock and off-road trucks hauling to stockpile
Purchase Diatomaceous Earth (DE)	TON	17,250	\$94	\$1,622,000	Assumed 5% by weight mixing rate. DE price from Waste Management
Mix DE with dredged material to improve handling	TON	17,250	\$2	\$35,000	Cost based on end loader mixing DE and dredge material
Materials handling from stockpile to rail cars	TON	362,250	\$5	\$1,811,000	Cost assumes end loaders loading to rail cars on each side of stockpiles
Water treatment	1,000 gal	7,500	\$10	\$75,000	(6); Water treatment cost based on recent construction project.
Transportation and Disposal					
Rail transportation and tipping fee at Subtitle D landfill	TON	362,250	\$50	\$18,113,000	Price from Waste Management for unit train service.
Inspection and Monitoring of Transload Facility					
Labor inspections during operations	FTE	2.5	\$75,000	\$188,000	Assumes 7 people during 4 months of dredging and 1 during subsequent 2 months
Environmental monitoring direct costs during offloading	MONTH	4	\$15,000	\$60,000	Cost for boat, monitoring equipment and chemistry analysis
Reporting	Year	1	\$40,000	\$40,000	Based on past experience
Total Estimated Cost				\$27,352,000	
Total Cubic Yards Handled Per Season				230,000	(7)
Total Tons Handled Per Season				345,000	Assumes 1.5 tons/cy unit weight
Estimated Cost Per Cubic Yard				\$119	
Estimated Cost Per Ton				\$79	

#### Notes:

(1) Assumed total dredge volume taken to upland landfill through life of facility:

2,000,000 cy

Alts B&C - ~200,000 to 1,260,000 cy (w/o in-water); 0 to 600,000 cy (w/ in-water)

Alts D&E - ~440,000 to 2,300,000 cy (w/o in-water); 0 to 600,000 cy (w/ in-water)

Alt F - ~2,200,000 to 6,698,000 cy (w/o in-water); 0 to 4,305,000 cy (w/ in-water)

- (2) Assumption for site development:
- Pier/dock structure development/upgrade (~\$1.5M)
- -Addition of ~10,000 feet of new rail line & ~5 switches (~\$3.5M)
- -Creation of 12 to 15 acres of bermed stockpile areas holding up to 70,000 cy of sediment (~\$1M)
- -Mobilization of offloading equipment, off-road trucks, end loaders and other equipment (~\$0.5M)
- -Miscellaneous site improvements (utilities, water treatment, offices, etc.) (~\$1M)
- (3) Assumed another ~5 acres for support activities for total site need of 20 acres. Lease rate is yearly.
- (4) Assuming 3,000 to 5,000 tons/day loaded out, 100 tons/gondola, and 10-day turnaround produces 300 to 500 rail cars needed each year.
- (5) Assumes 230,000 cy/season and 1.5 tons/cy weight conversion.
- (6) Assumes 15-acre stockpile receiving 37 inches/year of rain over the 6-month stockpile time.
- (7) Assumes for transload volume per year:
- <sup>-85</sup> to 105 days of dredging (5 to 6 days/week) in a 120-day construction window
- -700 cy/day/site and 2 to 3 cleanup sites being dredged at one time
- 10 to 15 acres of 5-foot stockpiles can hold between 70,000 and 120,000 cy for shipping to the landfill after the dredging season is complete.

### DO NOT OUOTE OR CITE

This document is currently under review by US EPA and its federal, state, and tribal partners, and is subject to change in whole or in part.

Table 25. Upland Subtitle C Landfill Disposal Cost Buildup

Task	Unit	Quantity	Unit Cost	Total Cost	Basis/Notes
Transload Facility Development					
Transload facility permitting	LS	1	\$40,000	\$0	(1); Based on past experience normalized over total landfill disposal volume
Transload facility development	LS	1	\$7,500,000	\$86,000	(1,2); One time cost normalized over total estimated landfill disposal volume
Yearly property lease rate	ACRE	0	\$23,500	\$0	(3); Lease rate based on Port of Portland T6 public records.
Yearly gondola mobilization	Cars	0	\$4,000	\$0	(4); Car mobilization price from Waste Management
Materials Handling and Stabilization					
Materials handling from barge to upland stockpile	TON	34,500	\$6	\$207,000	(5); Offloading rate based on crane on dock and off-road trucks hauling to stockpile
Purchase Diatomaceous Earth (DE)	TON	5,175	\$94	\$486,000	Assumed 15% by weight mixing rate. DE price from Waste Management
Mix DE with dredged material to improve handling	TON	5,175	\$2	\$10,000	Cost based on end loader mixing DE and dredge material
Materials handling from stockpile to rail cars	TON	39,675	\$5	\$198,000	Cost assumes end loaders loading to rail cars on each side of stockpiles
Water treatment	1,000 gal	0	\$10	\$0	(6); Water treatment cost based on recent construction project.
Transportation and Disposal					
Rail transportation and tipping fee at Subtitle D landfill	TON	39,675	\$170	\$6,758,000	Price from Waste Management for truck transport and coverted to unit train service.
Inspection and Monitoring of Transload Facility					
Labor inspections during operations	FTE	0.6	\$75,000	\$44,000	Assumes 7 people during roughly 1 month of offloading throughout the project
Environmental monitoring direct costs during offloading	MONTH	1	\$15,000	\$15,000	Cost for boat, monitoring equipment and chemistry analysis
Reporting	Year	0.25	\$40,000	\$10,000	Only a quarter of costs allocated to Subtitle C work
Total Estimated Cost				\$7,814,000	
Total Cubic Yards Handled Per Season				23,000	(7)
Total Tons Handled Per Season	·		-	34,500	Assumes 1.5 tons/cy unit weight
Estimated Cost Per Cubic Yard				\$340	
Estimated Cost Per Ton				\$226	

#### Notes:

- (1) Assumed total dredge volume taken to upland landfill through life of facility: 2,000,000 cy
- (2) Assumption for site development:
- Pier/dock structure development/upgrade (~\$1.5M)
- -Addition of ~10,000 feet of new rail line & ~5 switches (~\$3.5M)
- <sup>-</sup>Creation of 12 to 15 acres of bermed stockpile areas holding up to 100,000 cy of sediment (~\$1M)
- -Mobilization of offloading equipment, off-road trucks, end loaders and other equipment (~\$0.5M)
- -Miscellaneous site improvements (utilities, water treatment, offices, etc.) (~\$1M)
- (3) Assumed another ~5 acres for support activities for total site need of 20 acres. Lease rate is yearly. Assumes lease paid by the Subtitle D disposal work since the Subtitle C is a fraction of the D volume.
- (4) Assuming 3,000 to 5,000 tons/day loaded out, 100 tons/gondola, and 10-day turnaround produces 300 to 500 rail cars needed each year. Assumes cars mobilized as part of Subtitle D disposal work.
- (5) Assumes 400,000 cy/season and 1.5 tons/cy weight conversion.
- (6) Assumes 15-acre stockpile receiving 37 inches/year of rain over the 6-month stockpile time. Assumes water treatment costs covered by the Subtitle D disposal work since the Subtitle C is a fraction of the D volume.
- (7) Only a limited amount of potential Subtitle C material is currently estimated (say 10% of total amount)





## Table 26. In Situ Treatment Cost Buildups

Assumption: Material placed as pellet directly on the mudline using similar techniques as Enhanced EMNR placement.

Open water placement rate calculation:

Assume that the same placement method as EMNR which is:

1,200 tons/day or

21,600 sf/day

Confined water placement rate calculation:

Assume that the same placement method as EMNR which is:

400 tons/day or

7,200 sf/day

Unit weight of Sedimite:

Pounds per acre of Sedimite: 58,080 CY per acre of Sedimite: 48 Tons/cy of Sedimite: 0.61

Assumes carbon is Sedimite placed at a AC concentration of 6 pounds per square yard. Costs from Upal Ghosh

Material costs per acre: \$145,200

Assumes material placed with same method for EMNR

Tons per acre of material: 29 6 pounds/SY carbon, with Sedimite at 50% carbon by weight or 58,080 pounds/acre

Open water placement

Daily placement costs: \$26,000 Placement costs per sf: \$1.2

Confined area placement:

Daily placement costs: \$18,000 Placement costs per sf: \$2.5

Material and placement cost per acre - open water: \$198,000 Material and placement cost per acre - confined area: \$254,000

Material and placement cost per square foot - open water:

Material and placement cost per square foot - confined area:

\$4.50
\$5.80

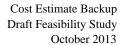




Table 27. Equipment Rates

Table 27. Equipment Rates		
Equipment	Rate (Hourly)	Notes
150 Ton Crane	\$111.00	Rental rate Blue Book for construction equipment - 181.40 MT lift capacity
100 Ton Crane	\$87.00	Rental rate Blue Book for construction equipment - 99.80 MT lift capacity
Crane w/Barge	\$225.00	Rental rate Blue Book for construction equipment
Derrick Rig 100 Ton Capacity	\$776.00	Local contractor known equipment rate
Tug 250 HP	\$16.00	Rental rate Blue Book for construction equipment
Tug 700 HP	\$60.00	Rental rate Blue Book for construction equipment
Tug 700 HP	\$60.00	Rental rate Blue Book for construction equipment
Barge	\$54.00	Rental rate Blue Book for construction equipment
Barge 200x60	\$107.00	Rental rate Blue Book for construction equipment
Debris Barge	\$54.00	Rental rate Blue Book for construction equipment
Pile Barge	\$54.00	Rental rate Blue Book for construction equipment
Material Barge	\$54.00	Rental rate Blue Book for construction equipment
Transfer Barge	\$54.00	Rental rate Blue Book for construction equipment
Lash Barges	\$143.00	Local contractor known equipment rate
Barge (50')	\$31.00	Rental rate Blue Book for construction equipment - 50-foot length, 9-foot draft
Diffuser Barge	\$107.00	Rental rate Blue Book for construction equipment
Work Boat	\$56.00	Local contractor known equipment rate
Push Boat	\$40.00	Rental rate Blue Book for construction equipment - 45-foot length, 435 HP
Scows	\$68.00	National contractor known equipment rate
Material Scow	\$85.00	National contractor known equipment rate
		1 1
PC 600 LC-7	\$82.00	Rental rate Blue Book for construction equipment
PC 300 LC-7	\$50.00	Rental rate Blue Book for construction equipment
Telebelt	\$65.00	National contractor known equipment rate
MOXY 31 Ton	\$32.00	Rental rate Blue Book for construction equipment
Dump Truck	\$32.00	Rental rate Blue Book for construction equipment
450 Loader	\$33.00	Rental rate Blue Book for construction equipment - 5.50 cubic yard
Clam Bucket (10 cy) - Debris	\$39.00	National contractor known equipment rate
Clam Bucket - Dredge and Cap	\$48.00	National contractor known equipment rate
Hydraulic Clam Bucket - Shoreline Dredging	\$60.00	National contractor known equipment rate
High Solids Pump	\$47.00	National contractor known equipment rate
Air compressor	\$5.00	Rental rate Blue Book for construction equipment
Welder/ Torch	\$22.00	Local contractor known equipment rate
ICE Vibratory	\$22.00	Rental rate Blue Book for construction equipment
Forklift	\$16.00	National contractor known equipment rate
Spuds	\$2.00	National contractor known equipment rate
Spud wells	\$1.00	National contractor known equipment rate
Pipe Welder	\$30.00	National contractor known equipment rate
Pug Mill	\$65.00	National contractor known equipment rate



Table 28. Labor Rates

	Hourly	Burden			
Labor Classification	Rate	Rate	Sub Total	<b>Total Rate</b>	Bid Rate
Health and Safety Officer	\$30.60	\$9.18	\$39.78	\$39.78	\$40.00
Office Clerk	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Project Engineer	\$28.98	\$5.80	\$34.78	\$34.78	\$40.00
Project Manager	\$44.94	\$8.99	\$53.93	\$53.93	\$65.00
QA/QC Manager	\$30.06	\$6.01	\$36.07	\$36.07	\$40.00
Superintendent	\$44.94	\$13.48	\$58.42	\$58.42	\$65.00
Captain					\$54.00
Tug Captain					\$54.00
Derrick Captain					\$54.00
Foreman					\$54.00
Crane Operator					\$51.00
Dredge Operator					\$54.00
Boat Operator					\$50.00
Oiler					\$50.00
Operator					\$46.00
Laborer					\$37.00
Work Boat Laborer					\$37.00
Deck Hand					\$37.00
Teamster					\$37.00

Burden Rates									
Office Personnel	20.00%								
Field Personnel	30.00%								



Table 29A. Material Costs

Material	Unit	FOB Plant Price	Barge Load Fee	Transport Fee <sup>a</sup>	Contractor Markup <sup>b</sup>	Total Unit Cost	Notes
Base Cap	Ton	\$12	\$0.5	\$0.5	\$1.63	\$14.6	Knife River quote #7838 8/23/2010 from Gordy Jarman
Armor Material A	Ton	\$15	\$0.5	\$0.5	\$2.00	\$18.0	Knife River quote #7838 8/23/2010 from Gordy Jarman
Armor Material B	Ton	\$15	\$0.5	\$0.5	\$2.00	\$18.0	Knife River quote #7838 8/23/2010 from Gordy Jarman
Armor Material C	Ton	\$15	\$0.5	\$0.5	\$2.00	\$18.0	Knife River quote #7838 8/23/2010 from Gordy Jarman
Armor Material D	Ton	\$15	\$0.5	\$0.5	\$2.00	\$18.0	Knife River quote #7838 8/23/2010 from Gordy Jarman
ODOT 100	Ton	\$27	\$0.5	\$0.5	\$3.50	\$31.5	Knife River quote #7838 8/23/2010 from Gordy Jarman
ODOT 200	Ton	\$27	\$0.5	\$0.5	\$3.50	\$31.5	Knife River quote #7838 8/23/2010 from Gordy Jarman
Organoclay Mat	SF	\$2.2	NA	\$0.1	\$0.29	\$3.0	Increased the cost 15% to account for overlaps. Cetco quote 10/4/10 from James Wang

### Notes:

<sup>&</sup>lt;sup>a</sup> Assumes aggregate transported by barge and mat by truck to middle of harbor

<sup>&</sup>lt;sup>b</sup> Contractor Markup: 12.5%



## Table 29B. Vendor Quote



Quote #: 7838

Project Name: Customer: ANCHOR QEA

WILLAMETTE RIVER PROJECT Attention: Micheal Crystal

Delivery Address: P: 206-287-9130

T-4 WILLAMETTE RIVER

mjcrystal@anchorqea.com

Source	Product Name	FOB Plant Price	Transfer Delivery	Solo Delivery	
Reichold	4"-3" SMALL COBBLES	\$15.00 Ton	\$22.00 Ton		
Reichold	2"-1" FINE GRAVEL	\$15.00 Ton	\$22.00 Ton		
Reichold	3/4"-1/4" FINE GRAVEL	\$15.00 Ton	\$22.00 Ton		
Reichold	3 ½" -2 ½" COURSE GRAVEL	\$15.00 Ton	\$22.00 Ton		
Reichold	GRAVELLY SAND	\$12.00 Ton	\$19.00 Ton		
Angell Quarry	CLASS 100 RIP RAP	\$20.00 Ton		\$27.00 Ton	
Angell Quarry	CLASS 200 RIP RAP	\$20.00 Ton		\$27.00 Ton	
Angell Quarry	CLASS 700 RIP RAP	\$25.00 Ton		\$32.00 Ton	
Angell Quarry	CLASS 2000 RIP RAP	\$25.00 Ton		\$32.00 Ton	

### The following terms will apply to material purchased at Knife River for this project:

- 1. Prices include standard ODOT quality control and process control tests at the plant during production of the above quoted product(s). Acceptance of materials supplied by Knife River is at the plant at the time of production.
- 2. All gradations per ODOT specifications unless otherwise stated. Materials contain natural moisture only.
- 3. Credit terms net 15th of month following invoice.
- 4. Prices are for all materials and dump sites quoted inclusive.
- 5. Per ton pricing is based upon full load deliveries. Short loads are priced at truck time plus materials.
- 6. Knife River will attempt to secure adequate trucking with a minimum of 48 hours notice.
- 7. If applicable, dump site agreement must be signed before any export will be accepted.
- 8. Conversion rates & proctors are for information only & shall not be used to determine pay quantities.
- 9. No retainage of any material purchased.

### Remarks:

- 1. PRICING IS FOR BUDGET PURPOSES.
- 2. KNIFE RIVER HAS A BARGE LOAD OUT FACILITY IF BARGING MATERIAL IS AN OPTION.
- 3. THE PRICE TO RENT KNIFE RIVER'S 6000 TON BARGE, KR-1, IS \$500 PER HOUR. THIS DOES NOT INCLUDE A TUGBOAT.
- 4. WE WILL LOAD THE ABOVE MATERIAL FROM THE REICHOLD SOURCE ONTO THE CUSTOMER'S BARGE FOR A FEE OF \$0.50 PER TON.
- 5. THE RATE AT WHICH WE LOAD KR-1 IS 1500 TONS PER HOUR. IF NEEDED, KNIFE RIVER WILL BACK THAT SPEED DOWN TO 1000 TONS PER HOUR TO ACCOMMODATE THE CUSTOMER'S BARGES LOADING CAPABILITY.

 Salesman:
 Gordy Jarman
 Date of Origin:
 8/23/2010

 Mobile:
 (503) 572-7236
 Quote Expires:
 12/31/2010

Mobile: (503) 572-7236 Quote Expire: Office: (503) 944-3500 gordy.jarman@kniferiver.com

Printed: 08/23/2010

### DO NOT QUOTE OR CITE



Table 30. Indirect Construction Cost Buildup

Daily Oversight and Project Management Including Environmental Monitoring									
<u>Labor</u>									
Task	Hrs/Week	Rate	Weekly Cost						
Project manager	60	\$180	\$10,800						
Field manager	60	\$125	\$7,500						
Field technician	60	\$100	\$6,000						
Field technician	60	\$80	\$4,800						
Field technician	60	\$80	\$4,800						
Office support	40	\$50	\$2,000						
Total Labor			\$35,900						
Weekly Direct Cost (1)			\$31,350						
Total monthly cost:			\$292,000						

Engineering Support During Construction									
<u>Labor</u>									
Task	Hrs/Week	Rate	Weekly Cost						
Project engineer	20	\$180	\$3,600						
Resident engineer	60	\$125	\$7,500						
Office engineer	40	\$80	\$3,200						
CAD	20	\$90	\$1,800						
Total Labor			\$16,100						
Weekly Direct Cost (2)			\$1,900						
Total monthly cost:			\$78,000						

### **Notes:**

Assumptions for both:

- The field technicians can support both the field manager and the resident engineer

### 1) Assumptions:

\$3,500 per week for boat, hydrolab, grab sampler, velocity meter, gps, misc equipment

Six (6) water quality samples per week - 3 at site and 3 at background @ \$2,000 per sample

Four (4) surface grabs per acre of dredge area. Assuming 1,000 cy/day dredge and 6 days/wk that is roughly 4 samples per \$3,400 per sample

Per diem for field crew.

# 2) Assumption:

Per diem, monthly site visit by Project Engineer



Table 31. Discount Factors for Long Term Monitoring, Maintenance and Operations Costs

Alternative <sup>1</sup>	First Year of Monitoring, Maintenance and Operations (year)	Total Construction Duration <sup>2</sup> (year)	Last Year of Monitoring, Maintenance and Operations		
B-r	6	6	36		
B-I (treat)	2	2	32		
B-i(cap)	2	2	32		
C-r	7	7	37		
C-i(treat)	3	3	33		
C-i(cap)	3	3	33		
D-r	8	8	38		
D-i(treat)	3	3	33		
D-i(cap)	3	3	33		
E-r	12	10	42		
E-i(treat)	7	7	37		
E-i(cap)	7	7	37		
F-r	14	24	44		
F-i(treat)	8	14	38		
F-i(cap)	8	14	38		

### **Notes:**

- 1 = Assumes a 2.3% inflation rate for calculating the discount factor
  - -r = Removal Focused, incorporates a range of costs (low/high)
  - -i = in-situ focused, incorporates a range of costs (low/high)
  - (treat) assumed in-situ treatment as the primary in-situ technology used for the lower end cost.
  - (cap) assumes engineered cap as the primary in-situ technology. Used for the higher end cost.
- 2 = The total construction is consistent with the durations presented in Appendix K of the draft FS. This is the final year of remedial construction activity with the final SMA to be constructed.



Table 32. Draft Template Table for EPA Comment: Cost and Quantity Estimates by sub-SMA

			Integrated Focused						Removal Focused					
sub-SMA ID	sub-SMA Area (Acres)	Treatment/ Cap Area (Acres)	Removal Volume (CY)	Low Cost	Cap Area (Acres)	Removal Volume (CY)	High Cost	Cap Area (Acres)	Removal Volume (CY)	Low Cost	Cap Area (Acres)	Removal Volume (CY)	High Cost	
B-NC-9607	2.25	-	39,145	\$11,743,481.36	-	51,918	\$ 20,767,144.00	-	39,145	\$ 11,743,481.36	-	51,918	\$ 20,767,144.00	
B-OW-WZ-9613	1.58	1.58	-	\$ 1,584,465.87	2.99	-	\$ 2,988,902.85	-	37,606	\$ 11,281,803.30	-	44,127	\$ 17,650,742.36	
B-OW-WZ-9524x	2.02	2.02	-	\$ 2,016,437.25	3.92	-	\$ 3,920,513.91	-	34,616	\$ 10,384,697.02	-	40,909	\$ 16,363,460.04	
B-OW-9611	0.61	0.61	-	\$ 605,429.39	2.84	-	\$ 2,838,250.69	-	30,793	\$ 9,237,965.40	-	40,077	\$ 16,030,973.57	
B-FD-6107	2.30	-	28,158	\$ 8,447,251.31	-	36,837	\$ 14,734,908.73	-	28,158	\$ 8,447,251.31	-	36,837	\$ 14,734,908.73	
B-OW-9509	0.44	0.44	-	\$ 444,844.41	2.01	-	\$ 2,008,434.48	-	25,801	\$ 7,740,280.20	-	31,489	\$ 12,595,796.97	
B-NC-9615	0.74	-	18,611	\$ 5,583,231.08	-	28,882	\$ 11,552,705.74	-	18,611	\$ 5,583,231.08	-	28,882	\$ 11,552,705.74	
B-OW-WZ-9614	0.85	0.85	-	\$ 854,743.15	1.30	-	\$ 1,302,424.66	-	18,427	\$ 5,528,054.77	-	23,501	\$ 9,400,504.48	
B-FD-9601	0.65	-	19,910	\$ 5,973,012.00	-	23,109	\$ 9,243,480.20	-	19,910		-	23,109	\$ 9,243,480.20	
B-SL-WZ-9529x	1.14	1.14	-	\$ 1,135,505.36	2.50	-	\$ 2,500,476.55	-	19,182	\$ 5,754,731.89	-	22,406	\$ 8,962,220.68	
B-NC-9001	0.88	-	17,904	\$ 5,371,103.08	-	19,011	\$ 7,604,519.00	-	17,904	\$ 5,371,103.08	-	19,011	\$ 7,604,519.00	
B-OW-9610	0.11	0.11	-	\$ 112,744.13	0.55	-	\$ 546,572.27	-	15,872		-	18,434	\$ 7,373,662.59	
B-FD-3102x	0.52	-	14,880	\$ 4,463,930.19	-	18,308	\$ 7,323,228.92	-	14,880	\$ 4,463,930.19	-	18,308	\$ 7,323,228.92	

### Notes:

sub-SMAs are organized fom the highest cost (Removal focused) to the lowest.

Dummy values provided. Pending EPA comment this table will be populated with actual data from the draft FS.

This draft template table only shows 10 sub-SMAs. After EPA approval, the actual table would include all 387 sub-SMAs.